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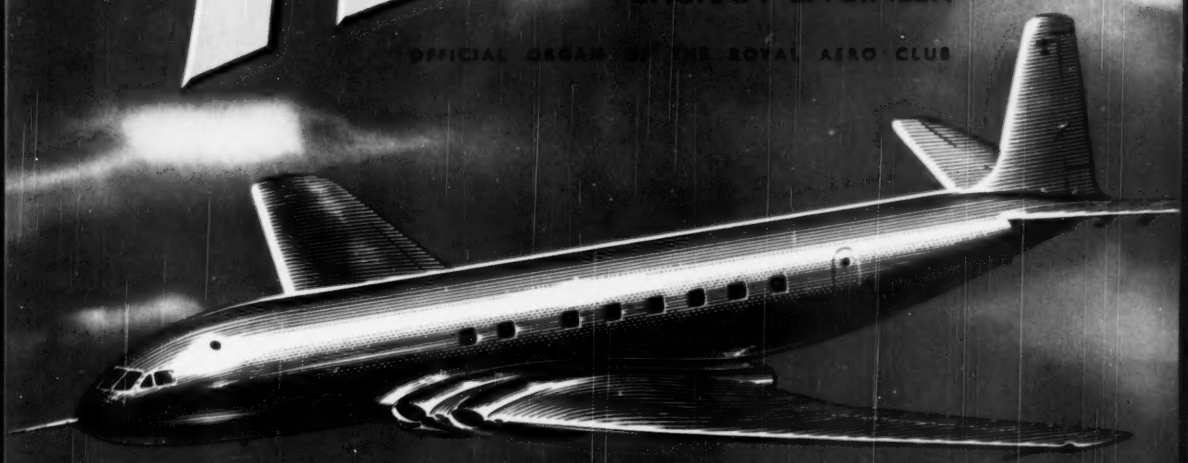

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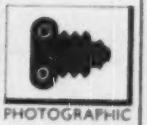
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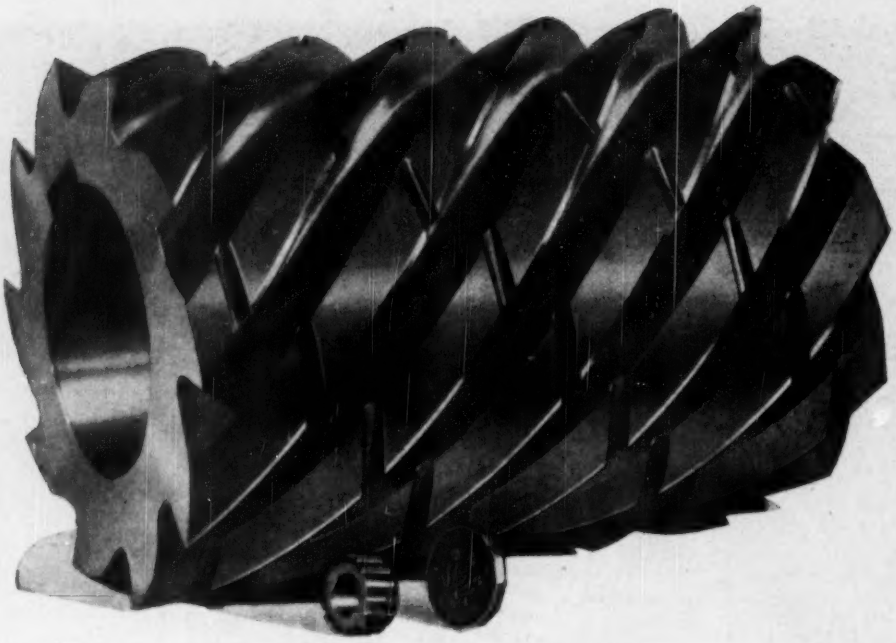

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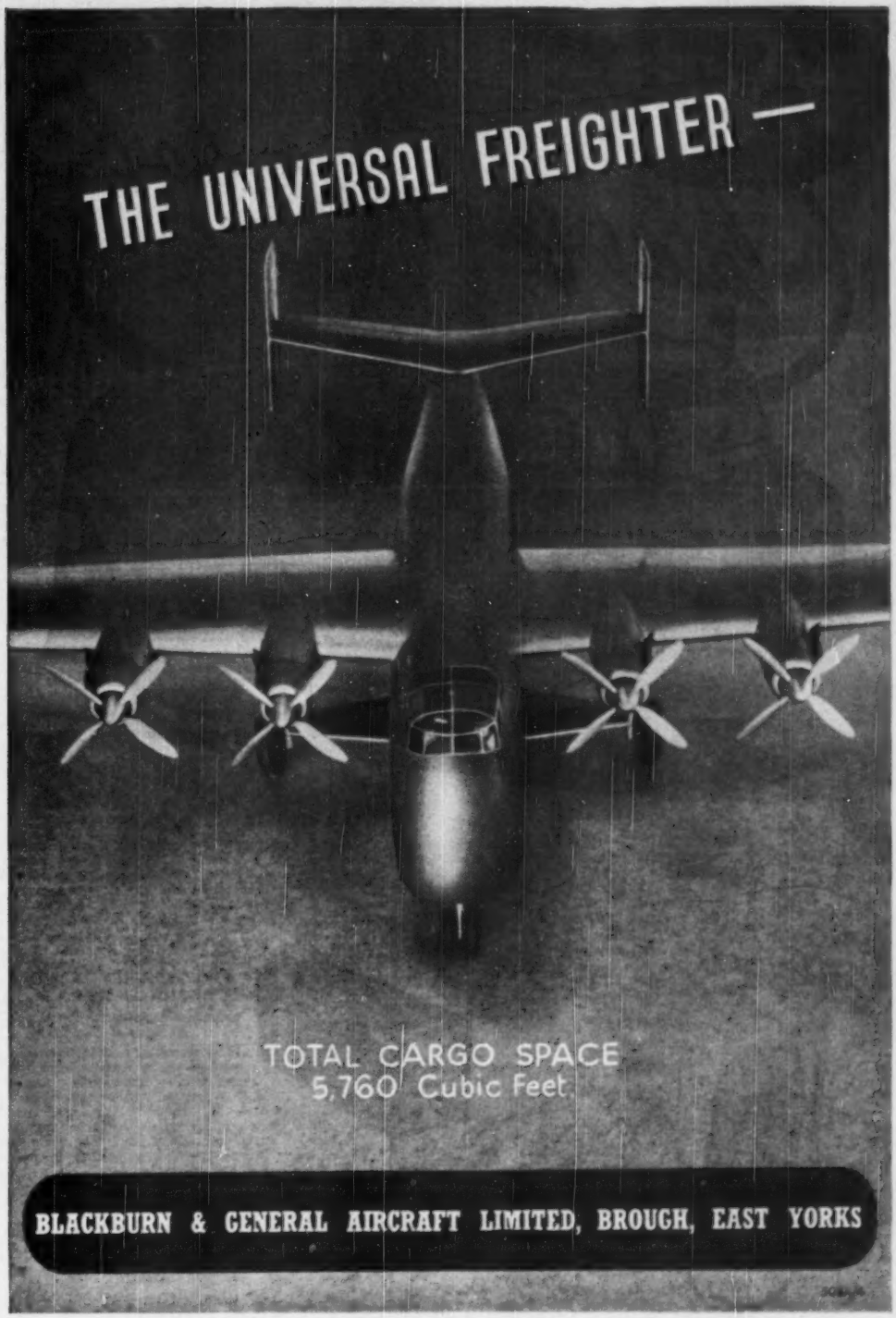
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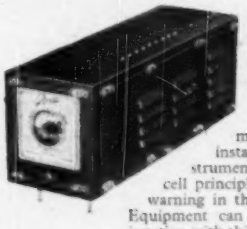

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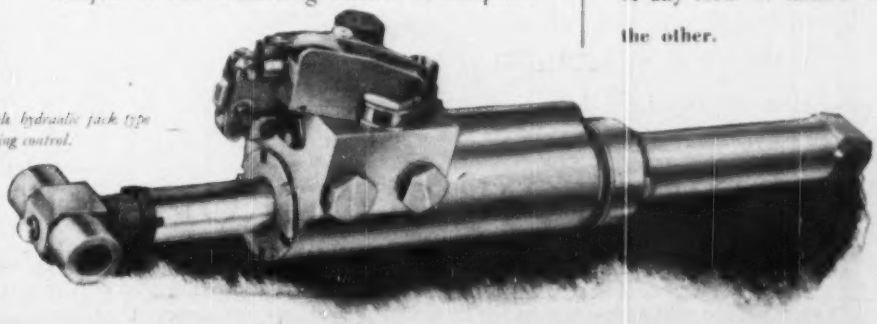

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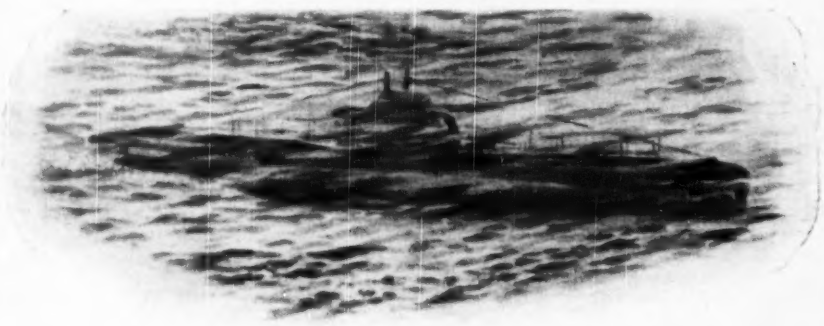

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First Aid

HOWEVER late and however small may be the recently announced Air Ministry contribution towards the training by our civil flying clubs of selected A.T.C. cadets, we must not be ungrateful. It is the first definite indication—apart from abundant but unproductive verbiage—that the importance of *ab initio* flying training outside the Services, and of the private flying movement as a whole, has been officially recognized. For at least four years strenuous efforts have been made by many people who have aviation interests at heart to induce the Government to give some sort of financial assistance to civil flying. It has been felt—and quite rightly, in our opinion—that the flying clubs, and those for whom they wish to cater, are of sufficient national importance to justify at least a small measure of aid in their hour of need. Until recently not only have they received no help at all, but in some respects they have been subjected to setbacks and discouragements which could easily have been obviated by sympathetic official treatment.

There is little doubt that young men in this country are less interested in, and therefore less well-informed about, flying than are those in several other countries, and that recruiting for the flying Services has suffered as a result. Every other nation which can claim to be an important air power (in proportion to its size) has given a practical indication of its support for these opinions.

It has yet to be decided exactly how the Air Ministry's £30,000 for training will be spent, but the sum may be divided between some fifty flying clubs, all of which should be able to meet the uniformly high instructional standards to be demanded by the Air Ministry and the M.C.A. The Association of British Aero Clubs and Centres is co-operating with the Air League in the important work of administration.

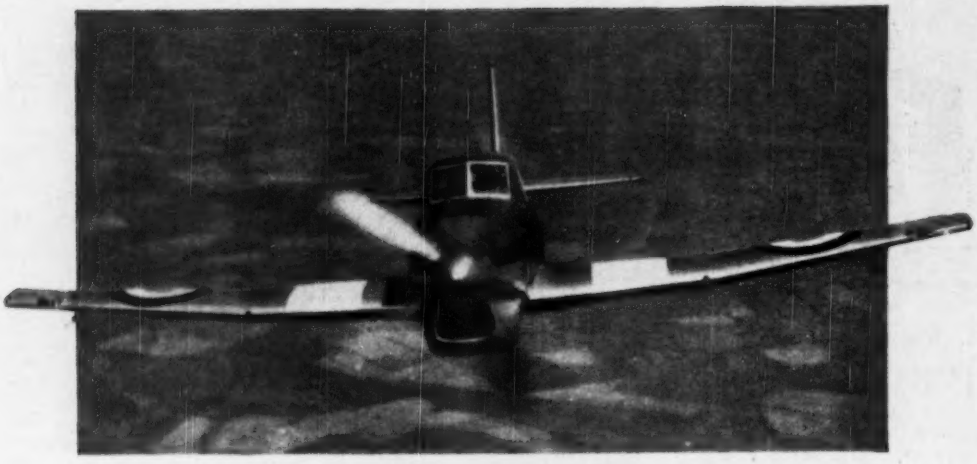
This flying training scheme for A.T.C. cadets selected by Reserve Command may be viewed as a small part of a much larger pattern now in the making. This will bring about a closer co-operation between military and civil aviation interests both of which are now largely the responsibility of the state, and will aim to ensure that a substantial merchant fleet together with its complete maintenance and operating organizations is available to the country in the event of war.

The R.A.F.'s New Trainer

CONCERN at the dearth of orders for military aircraft, expressed in this column a week ago, is somewhat alleviated by the announcement that the Boulton Paul Balliol Mk. 2, with Rolls-Royce Merlin engine, has been accepted as the new type of advanced trainer for the Royal Air Force. This most welcome intimation follows the delivery of the first de Havilland Chipmunk elementary trainers to Reserve formations, and though, pending submission of tenders, no production orders for the Balliol have yet been placed, it is an earnest of the Air Council's intention not to defer any longer their plans for superseding the Harvard. By the time the last of these fine American machines is likely to have left the F.T.S.s, the type will have completed well over a decade of exemplary service.

With the Chipmunk as the standard Reserve trainer, the Balliol for more advanced instructional work, and the Meteor 7 as the transitional jet, R.A.F. Training Command will be well equipped to prepare its charges for new first-line aircraft, and it is earnestly to be hoped that the Balliol orders—so well deserved—will prove to be the first of a number for the revitalizing of all Commands.

That the Merlin should have been selected to power the new trainers is not, of course, surprising, for large stocks remain on hand, and for all their merits (so admirably demonstrated in new British transport aircraft), the Mamba and Dart turboprops would inevitably require more "nursing" than would piston engines backed by millions of hours of experience. It must be recognized, moreover, that the turboprop will have a strictly limited application among first-line aircraft, and that routine tuition in training aircraft powered by this type of unit would be of questionable value to the fighter and bomber pilots of the future.



THE BALLIOL ADOPTED

Boulton Paul Advanced Trainer, with Rolls-Royce Merlin Engine, Selected for the Royal Air Force

FOLLOWING completion of a long series of comparative trials at home and abroad comes the official announcement that the Boulton Paul Balliol 2 has been selected as the new advanced trainer of the Royal Air Force—news that will bring the constructors, Boulton Paul Aircraft, Ltd., well merited congratulation.

The version chosen is fitted with a Rolls-Royce Merlin engine, though variants have been flown with the Armstrong Siddeley Mamba turboprop (Mk. 1) and the Bristol Mercury piston engine (P.108). Four Mk. 2 prototypes have been built, and work is well in hand on seventeen pre-production machines for service tests. Quantity production will be subject to competitive tender, and it is understood that several foreign Governments are interested.

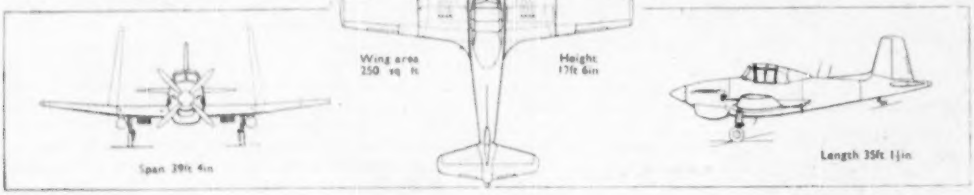
The Balliol is the first Boulton Paul type to be adopted for R.A.F. service since the Defiant turret fighter, likewise with a Rolls-Royce Merlin. A single squadron of Defiants claimed 37 enemy aircraft destroyed in a single action, and the type distinguished itself in the role of a defensive night fighter before being relegated to target-towing and experimental flying. Many of the present generation of R.A.F. pilots, however, will be unacquainted with other distinguished ancestors of the Balliol; a selection of views of these is therefore presented on the opposite page. Of all the virtues of the Balliol's forebears, those which are most strongly reproduced in the new trainer are, perhaps, sweetness of handling, manœuvrability and workmanlike construction.

Especially memorable were the exceptional aerobatic performances by the Bourges, Sidestrand and Overstrand twin-engined bombers; but the efficiency of Boulton Paul aircraft was manifest in smaller types, particularly the little P.9 of 1919—the last wooden aircraft to be produced by the company. It is justly claimed that this private-owner or trainer type was five years ahead of its time; only the slump of 1920 prevented its production in quantity. It had full dual control, was fully aerobatic, and stable about all axes. A 90 h.p. R.A.F. engine gave it a top speed of 104 m.p.h. and it landed at about 40 m.p.h. The selling price was £800, and the "first off" was built and shipped within six weeks of the order being received.

Multi-purpose

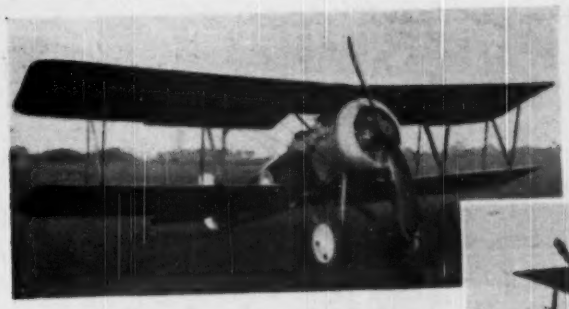
The Balliol 2—a worthy descendant of this pioneer—was designed to meet the requirements of modern advanced training by day or night in flying, gunnery, rocket-projectile firing, navigation, bombing, photography or glider towing. It is readily adaptable for deck landing. The structure is built in easily transportable units, of which the following are the chief: power unit; front fuselage (from engine bulkhead to wing trailing-edge); rear fuselage, forward portion (from wing trailing-edge to a joint immediately forward of the tail unit); rear fuselage, aft portion; outer wings; centre wing; tailplane.

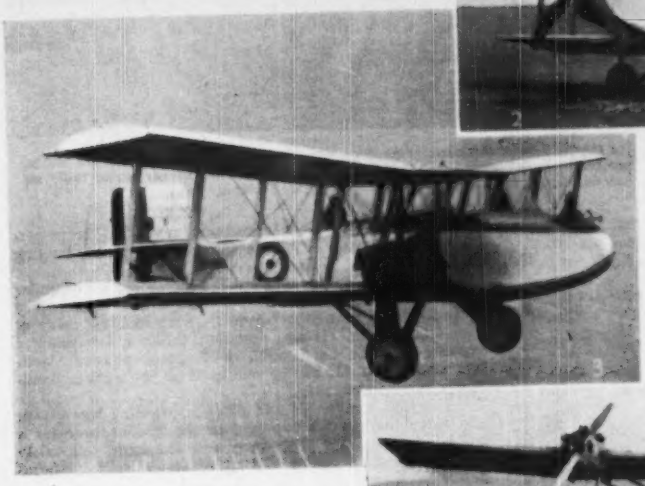
A two-spar form of construction is used for the wings, in which the rigid torsion box formed by that portion lying between the spars is preserved uninterrupted over the entire span. Of light-alloy L-section extrusions, the spars are ex-



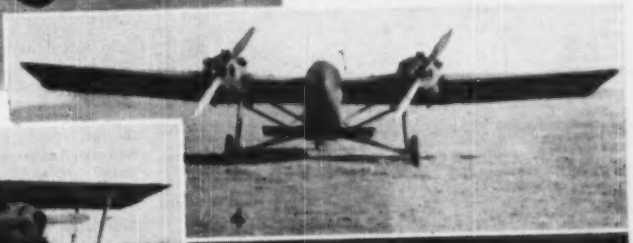
BALLIOL'S GENESIS . . . .

A Selection of the Boulton Paul Bombers, Fighters and Light Aircraft that Have Appeared Since the First World War

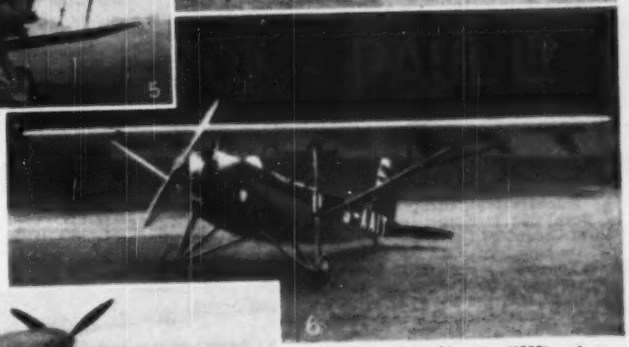


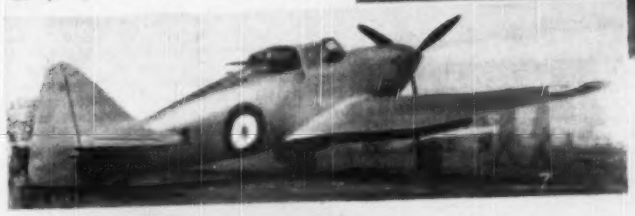


(1) Type P.3 Bobolink (1918). A single-seater fighter with a 230 h.p. Bentley B.R.2 rotary engine. Span, 29ft ; gross weight, 1,920 lb.
(2) Type P.9 (1919). A dual-control light aircraft suitable for touring or training, with a 90 h.p. R.A.F. 1A engine. Span, 27ft 6in ; gross weight, 1,800 lb.
(3) Type P.29 Sidestrand (1927). Precursor of the famous Sidestrand Mks. I, II, III and IIIS, this medium bomber was powered with two 450 h.p. Bristol Jupiter VI engines. Span, 72ft ; gross weight, 8,850 lb. "*Flight*" photograph.



(4) Type P.31 Bittern (1928). A night-fighter with two 215 h.p. Armstrong Siddeley Lynx engines. Span, 41ft ; gross weight, 4,500 lb. The guns were movable in elevation, permitting attack from positions denied to the fixed-gun fighter.
(5) Type P.33 Partridge (1930). A single-seat fighter embodying an advanced form of metal construction. Bristol Jupiter VII engine of 450 h.p. Span, 35ft ; gross weight, 3,100 lb.





(6) Type P.41 Phoenix (1929). A two-seater light aircraft with a 40 h.p. Salmson engine. Span, 30ft ; normal all-up weight, 1,000 lb. Used for full-scale research.
(7) Type P.82 Defiant (1938). The first of the famous Defiant turret fighters is depicted. The engine of this machine was a 1,030 h.p. Rolls-Royce Merlin III. Span, 38ft 4in. "*Flight*" photograph.

THE BALLIOL ADOPTED . . .

panded at their ends to form the lugs for the pin-joint attachments, and are connected by reinforced webs. The front spar is located at 33 per cent chord and the rear spar at 70 per cent. Thus, it has been possible to stow the undercarriage and dive brakes in the leading edge, while the fuel tanks are housed between the spars. Conventional split flaps are fitted. In addition to the wing tanks there is a fuselage tank and provision for two standard under-wing drop tanks.

Instructor and pupil are seated side by side, and the deep cockpit hood affords an unusually wide field of vision. Built-in amber filters are supplied for synthetic instrument flying; these are normally stowed behind the instrument panel and are brought into position pneumatically by means of a press-button control valve. The fixed top panels of the windscreen are permanently tinted, and there are two sliding side filters.

During the last two or three years the Editor of *Flight* has had opportunities to fly several types of trainer, among them the Balliol and its Mercury-powered prototype, the P.108. The following are extracts from his reports, published at the time in the "In the Air" series of handling notes:—

"Ground handling of the aircraft is quite fascinating. The very wide track makes for stability, and a steerable tailwheel gives exceptional directional control. The powerful pneumatic brakes can be applied fiercely on the landing run without the tail lifting.

"On opening up (for take-off) the Balliol moved off under excellent directional control . . . came unstuck after a very short run, and with wheels and flaps up climbed away at a creditable rate. It was apparent within a few minutes of take-off that the Balliol with its responsive, well-harmonized controls will be well liked on the score of handling in all manœuvres.

"The stall was gentle and straight, warning was given, and when the aircraft was held in the stall attitude for a second or two, the left wing and the nose fell fairly abruptly—a good advanced training characteristic. Aerobatics are smooth and easy to perform.

"Normal powered approaches were commenced at about 85 kt, reducing to 75 over the hedge. The angle of approach is steep, and the forward view of the landing path good. If speeds have been approximately correct on the final approach the machine sits down sweetly as soon as the three-point attitude is assumed. For a glide approach the angle is very steep, and the speed should be between 95 and 100 kt for the early part of it.

"Since I flew the prototype, the ailerons—always pleasant controls on the Balliol—have been further improved by more than doubling the area of their tabs. This has overcome a tendency to heaviness at the higher speeds at which the later versions fly. The other controls carry trim tabs only."

For the purpose of this photograph, long-range fuel tanks, practice bombs and rocket projectiles were installed on a Balliol 2—a combination which would not normally be carried, though the aircraft has actually been flown in this condition.

BOULTON PAUL BALLIOL T Mk. 2
Rolls-Royce Merlin 35 Engine

Dimensions	
Span	39ft 4in
Length	35ft 1½in
Max. height	12ft 6in
Wheel track	15ft
Gross wing area	250 sq ft
Weights	
Structure	2,947lb
Power unit	2,537lb
Fuel and oil systems	302lb
Fixed equipment	870lb
Fuel (125 gal)	900lb
Oil (7½ gal)	68lb
Removable equipment	264lb
Crew	448lb
Normal all-up weight	8,336lb
Performance	
Max. speed	305 m.p.h. at 11,500ft
Max. continuous r.m. cruising speed	280 m.p.h. at 10,000ft
Max. continuous w.m. cruising speed	240 m.p.h. at 10,000ft
Climb	15,000ft in 10.64 min
Service ceiling	32,500ft
Distance to clear 50ft	450 yd
Distance to rest over 50ft	650 yd
Endurance	2¼ hr at 10,000ft at 210 m.p.h.

C.U.A.S. JUBILEE

ON February 17th, twenty-five years ago, an Air Ministry Board met to discuss the possibility of forming an Air Unit at Cambridge University, and on Friday last, February 17th, the Squadron celebrated its Silver Jubilee with a dinner at the University Arms Hotel.

Together with the Chief of the Air Staff, Air Chief Marshal Sir John Slessor, and the Vice-Chancellor, Mr. S. C. Roberts, the Master of Pembroke, the celebration was enjoyed by many of the original members and staff, including two Dons who were present at the original meeting 25 years ago, namely, Prof. Sir Charles Inglis and Prof. Sir Benet Melvill Jones.

In referring to the quality of the Squadron, W/C. Simpson, the Commanding Officer, stated that, even twenty-five years ago, great attention was paid to aptitude and instanced this by reading an extract from an early Air Ministry report, in which reference was made to the desirability of recruiting the "hunting-type" of undergraduate who, although having a dislike for machinery, was a "clean-living, high grade type." This provoked roars of appreciative cheers. The Squadron was being re-equipped with Chipmunks and the first four had been received that same afternoon; flying had gone well during the year and twelve Squadron members had gone up for permanent commissions.

The Chief of the Air Staff, proposing "the Squadron," referred to the C.U.A.S. precedence over the O.U.A.S. by ten days; it was simply a matter that in 1925 the Michaelmas term at Cambridge started ten days before that at Oxford. He thought that the Cambridge Squadron was in every way excellent except that it was not producing enough regular officers for the R.A.F. Nothing was more important in his view than that members of the C.U.A.S. should go into the regular Service, and this applied particularly to Cambridge, for the high-grade engineering officer and the high-grade research man which this University produced was of the utmost importance not only for the good of the Service, but for the country as well.

AVIATION AND THE ELECTION

The Three Main Parties Reply to a "Flight" Questionnaire

THOUGH its attitude to party politics is strictly neutral, *Flight* feels that in all the discussion, both written and verbal, leading up to to-day's General Election, very little has been said by any party on the subject of either civil or military aviation. The Editor has therefore invited, in identical terms, the Party H.Q.s of the three leading protagonists briefly to express their attitude to this question and to summarize the action each intends to take if returned to power. The Conservative reply was a lengthy one, and has perforce had to be summarized; for the same reason the Liberal contribution has been very slightly abbreviated; the brief Labour reply, received as we closed for press, is given in full.

THE CONSERVATIVE POLICY

Air Transport.—Though the Conservatives agreed, in the Coalition Government, to the creation of the Corporations, the original plan was very different; it was intended that independent companies should be allowed to operate on routes not assigned to the corporations; other transport organizations (railway and shipping companies, travel agencies) should participate in the Corporations; and once the Corporations had been established Ministerial control should be confined to general aviation policy in its broadest aspect.

In the event, competition was eliminated, the Corporations being wholly financed by the Government and the Minister having authority to tell them where to fly and what aircraft to use. One result was a £31 million bill for the taxpayer; and there was continual trouble about the types of aircraft to be employed.

It had been a case of "too many cooks," a situation which a Conservative Government, if returned to power, would tackle at once. The Ministry of Civil Aviation would cease to exist as a separate department, its work being distributed between the Transport and other Ministries. Civilian functions of the Ministry of Supply would be eliminated.

The Conservative Party would not "denationalize" air transport, but it would restore a wide measure of free enterprise.

Private Flying.—The Conservatives are fully alive to the close connection between civil aviation and the R.A.F. They strongly opposed the Socialists' withdrawal of financial aid from the clubs. As soon as a Conservative administration had begun to clear up the financial mess it would give very practical effect to its belief in flying and gliding clubs.

The Air Forces.—The Party attaches the greatest possible importance to the R.Aux.A.F. A Conservative Government would make it a matter of first priority to induce more men and women to join this branch than are at present doing so.*

As regards the R.A.F. itself, the belief is widespread that the nation is not getting value for money. This is no reflection upon the R.A.F. but only upon the present system of National Service. The call-up period is too short for the training of high-grade technicians. The aim must be to secure more long-service personnel. Co-operation between Government, employers and workers should make it possible to integrate a man's long-service period into his life career.

The present National Service scheme is even less satisfactory when it comes to aircrews. Here, a short-service system is essential, because of the qualities required of the men. Again, the problem is to integrate R.A.F. service into a life career.

Pay and living conditions for all ranks must compare favourably with those offered by civil life. This is a cardinal point in the Conservatives' defence policy. They propose an immediate survey of the whole of the £750,000,000 defence expenditure.

Research.—Finally, they are convinced that in the field of research the partnership between private enterprise and the State can be as fruitful to-day as in the past. There are experimental facilities which it is reasonable that the State should possess and make available to commercial interests. It would be wantonly extravagant if every constructor of aircraft had to provide himself with all the research equipment involved, for example, in solving problems of supersonic speed. But it would be disastrous to restrict research and experiment to State-owned and State-controlled establishments.

*In this connection a manifesto was issued last week-end by "a group of women pilots" appealing to candidates to support their plea for official assistance—comparable with that visualized in the A.T.C. flying training scheme—towards the cost of enabling women to qualify for the W.R.A.F.V.R. flying list; the present requirements are a Pilot's Licence and 100 hours' flying.—ED.

VIEWS OF THE LIBERALS

We are determined that British air transport shall attain a position in world air transport at least comparable with that of the British Mercantile Marine in world sea transport. We believe that our Civil Aviation has suffered from too many political upheavals and that it needs stability. Thus, even although under doctrinaire Socialism the State-owned Corporations have proved costly both in operating losses and in totally unnecessary hard currency capital expenditure, we will not destroy them, but will free their managements from all but general control—and then we will pass legislation to enable others to meet the needs of the public. The Corporations will then prove by their comparative results whether they deserve to survive. We will encourage private enterprise particularly in internal aviation and in charter flying, both in competition with the nationalized corporations and over routes which cannot be served by their scheduled services.

In accordance with Liberal principles we shall encourage private enterprise, with substantial help from the State, in development work of all sorts and by providing the results of scientific research in State institutions, to retain world leadership in aircraft design and construction.

Liberal support for the Civil Aviation Bill in the House of Commons was largely based on the fact that the Bill provided the aerodromes needed for this nation. It was an incidental fact that the one Tory monopoly was replaced by three Corporations, thus giving some element of competition.

But the administration of the Corporations created under this Act has been unhappy. We should:—

(i) leave them as free of Government control as the B.B.C. or the Port of London Authority;

(ii) allow them to adopt methods of free enterprise.

Profits and losses since the war have been:—

	B.O.A.C.	B.E.A.	B.S.A.A.
1946/47	£8,076,844	£2,157,957	£74,736
1947/48	£7,091,430	£3,284,282	£592,089
1948/49	£5,844,695	£2,763,085	£1,133,082

While recognizing that for rare strategic or social reasons certain lines can justifiably be run at a loss, these figures indicate a situation that is far from satisfactory.

Safety in civil aviation is more important than cost. In no circumstances must any misguided economy be allowed to affect safety. Therefore all safety devices on the ground must be lifted out of the field of competition. We will charge the State, in co-operation with the Service Ministries, with research in this field, the development of radar and other safety devices and with revising our safety regulations and ensuring they are practical. A highly efficient department, assisting and not hampering a virile air transport industry, must see that every reasonable measure is taken to ensure that accidents do not happen.

[The Liberal statement makes no reference to Service Aviation, but Party H.Q., in sending the above statement, encloses a brochure, *National Defence—the Report of a Committee of the Liberal Party*. In this document the view is expressed that while consumption in peace-time will give quantity it will not give quality, and that "Until some effort has been made to relate the pay of the Armed Forces to industrial wage-rates, it is totally unfair to say that further recruits cannot be obtained as volunteers."—ED.]

LABOUR PARTY'S STATEMENT

(a) Commercial Aviation: The Government plans an expansion so as to bring in a net surplus of foreign exchange in 1950-51.

(b) We want to see our aircraft industry keep its lead over the rest of the world. There is already strong Government backing to the aircraft industry at the public expense in research and development.

(c) We want to see our Air Force given the best machines and kept at a high level of efficiency.

HERE and THERE

ANGULATION: Swept-back surfaces, both horizontal and vertical, gain an odd emphasis in this strikingly close formation of four North American F-86 Sabres.

To Go with a Bang

THE firing of rocket projectiles with dummy heads, two set-pieces and demonstrations by new types of aircraft are likely to be features of the R.A.F. display at Farnborough on July 7th and 8th. The organizer—G/C. W. A. J. Satchell—is already busy "on site."

Jets on the Yukon Trail

THE R.C.A.F. Vampires taking part in Exercise *Sweetbriar*, the joint Canadian-American manœuvres in Alaska, are reported to have been performing well in very hard weather; sorties have been made between blizzards and in temperatures of from 25 deg to 40 deg below zero. The U.S.A.F. component also has some jet fighters—F-80s—taking part.

Argentinian Rhythm

THE Argentinian Minister of Aviation has put a Focke-Wulf Stieglitz biplane at the disposal of Señora Edilina de Ovarzum, a woman aerobatic pilot who holds a record for consecutive looping. An official communiqué says that "it is the duty of aeronautical authorities to sponsor the initiatives of all those persons . . . who tend to foster aviation rhythm to the utmost."

Three Turks and a Finn

NEW foreign types reported to be under construction include three machines from the Turkish Air League (Türk Hava Kurumu) factory: the THK-12, a twin-engined, 12-passenger tederliner with 600 h.p. P.W. Wasps; the THK-14 two-seat glider; and the THK-15 all-metal, two-seat primary glider.

In Finland, the VL State factory is at work on a prototype advanced trainer, the VL Vihuri. A low-wing, all-metal monoplane powered by a Pristol Mercury built under licence, the Vihuri has a designed top speed of 250 m.p.h.

Vampires for Italy

ITALY is to take delivery of her first de Havilland Vampires this week. The aircraft are being flown out from England to the aerodrome at Amendola, near Bari.

He. and Me.

PROFESSOR ERNST HEINKEL, the German aircraft designer, is reported to have visited the Fokker works in Amsterdam with a view to an engagement in an advisory capacity. This may be a sequel to the recently announced resignation of Mr. M. Beeling, the company's chief designer.

Meanwhile, a perhaps even more famous German technician, Willi Messerschmitt, has been touring factories in India to obtain material for a report, said to have been commissioned by the Indian Government, on aircraft-production possibilities.

Air League Appointment

IT was announced last Monday that Mr. Frank Hillier has been appointed Secretary-General to the Air League of the British Empire, in succession to Mr. E. Colston Shepherd. Mr. Hillier was, until recently, public relations controller of British South American Airways.

The Lost B-36

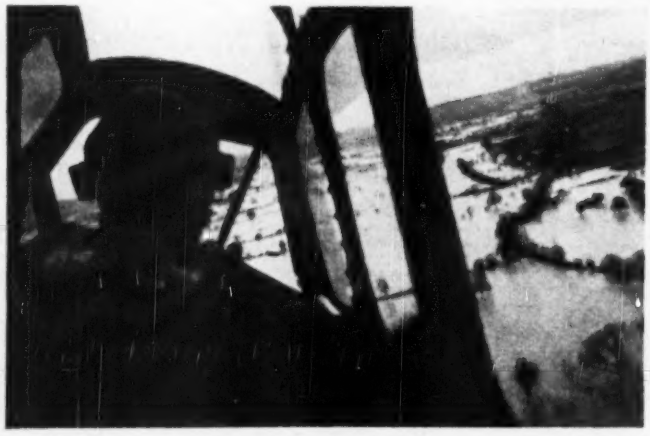
ALL 17 members of the crew on board the U.S.A.F. B-36 which was "ditched" in Queen Charlotte Sound, B.C., on February 14th after catching fire in the air, were at first reported to have been rescued, but later reports said that five were still missing. A B-29 engaged in the search was wrecked in a take-off crash at Great Falls, Montana, eight of the crew losing their lives.

New Broom

A REQUEST for about 4½ million dollars has been made by the United States Army for the continuance of tests of a new anti-aircraft gun, known as the Sky-sweeper, said to be capable of hitting supersonic aircraft, by night or day, at short and medium ranges. The weapon is of 75 mm calibre, and its principal features, as might be expected, are radar-directed fire control and proximity-fused ammunition.

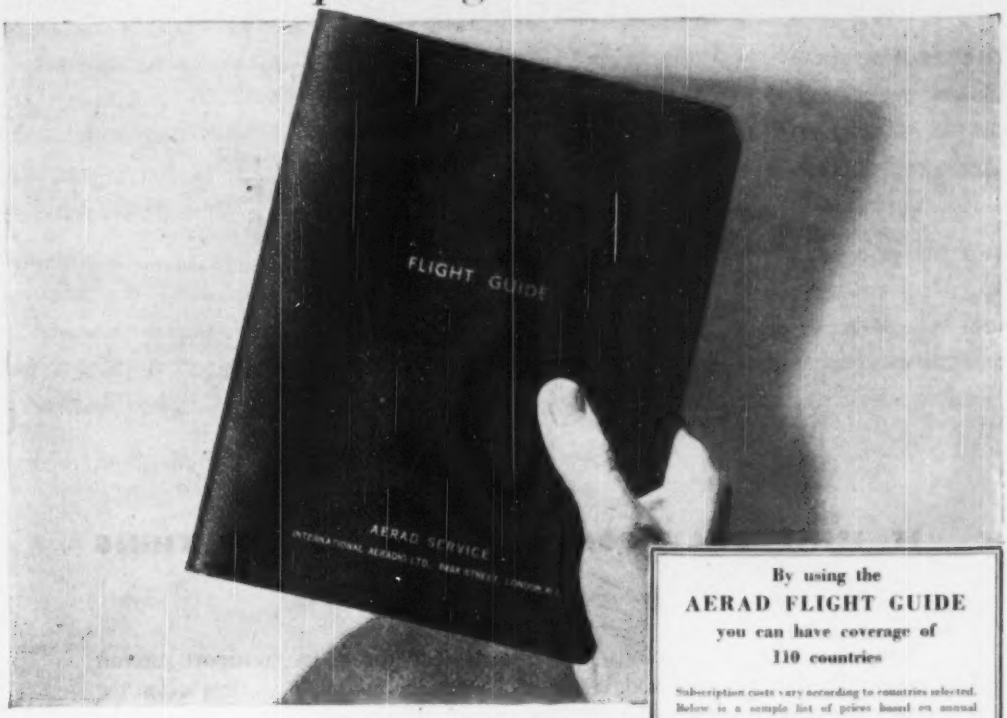
Take it from Here

FOR the past five months, Australian airline radio operators have been troubled by broadcast programmes intruding when they were tuned-in on V.H.F. to the Essendon Airport (Victoria) control-tower frequency. After a long search by D/F and other methods, it has been discovered that the interference emanated from a 14-year-old, home-built, five-valve, superheterodyne broad-



WET START: In spite of dull weather and high relative speed, this vivid picture of the flooded Severn Valley was taken, last Thursday, from a Meteor 7 flown from the Gloster airfield at Moreton Valence by Jim Cooksey, one of the test pilots.

How to cut operating costs in SAFETY



The actual size of the Aerad Flight Guide is 8½" x 5½"

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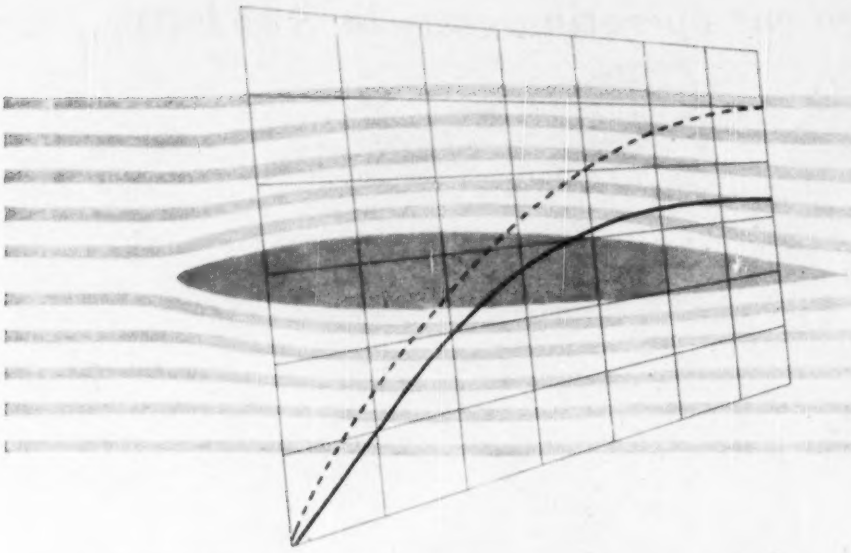

IT ISN'T ONLY FOR THE LOOK OF THE THING

0·0002 inches — and how much it means

Roughness tests on aerofoils have shown that for a jet transport aircraft with a design payload and range of 14,000 lb. at 3,000 nautical miles the drag increase resulting from a poor finish may mean a loss of payload of 7,000 lb. — not exactly a small proportion. When critical roughness exceeds 0·0005 inches this loss may well be much greater.

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LADYWOOD · BIRMINGHAM · 16

HERE AND THERE . . .

cast receiver in the neighbourhood: in its old age, apparently, it had turned itself into an efficient V.H.F. transmitter capable of rebroadcasting whatever programme it was receiving.

Up to be Shot at

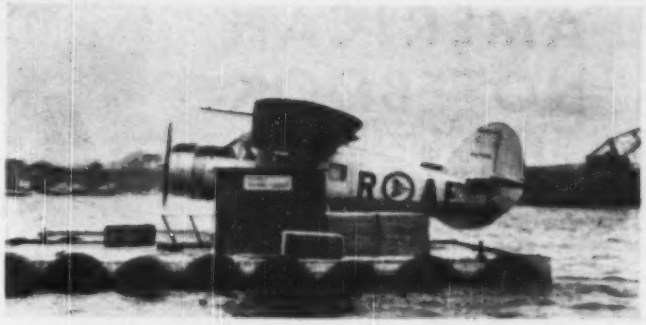
A FURTHER order for Fairey Firefly target-towing aircraft has been placed by Svenske Flygtjanst A.B., which operates target-towing services for the Swedish Government. The new order follows a year of extensive and successful experience with an initial batch of Fireflies.

The target-towing version was developed in response to overseas requirements, and has been flown with both 16ft- and 30ft-span glider targets. It has a tow-line of 7,000ft (2,150m) maximum length, with windmill re-wind. The gliders, which are of all-wood construction and have been towed successfully up to speeds of 210 m.p.h., are built in Sweden under licence from the British R.F.D. Company.

News—13 Years Old

AN R.C.A.F. Lancaster of No. 408 Photo-Survey Squadron recently reported sighting a large steamer, apparently abandoned and fast in the ice off Mansell Island, near the entrance to Hudson Bay. Air Force H.Q. in Ottawa had no record of any vessel of such size being abandoned in the area, so the "find" seemed worthy of announcement in an R.C.A.F. news release—which says, among other things, "the deck was sheathed in ice, but the general appearance of the ship gave the impression that it had not been abandoned for a great length of time."

Intrigued by this story, *Flight* asked Lloyd's if they knew anything about the vessel. They did—she is, it seems, the British *Ascot River*, 5,280 g.r.t., which ran aground on the west coast of Mansell Island on September 16th, 1936! In view of the short ice-free periods in this area, she was not thought worth salvaging. The almost undamaged condition of the ship after thirteen years' exposure (see photograph) makes the Lancaster crew's conclusions understandable.



CANADIAN IN NORWAY: A Noorduyn Norseman of the Royal Norwegian Air Force moored to a pontoon in Bodö harbour, north of the Arctic Circle, where floatplanes of this type are used mainly for ambulance and supply work.

NEWS IN BRIEF

THE opening event of 1950 for the Aero Golfing Society is a match against the R.A.F.G.S. on March 14th, to be followed in the evening by a dinner at Londonderry House, given by the directors of *Flight*.

* * *

The Plessey Co., Ltd., announce the appointment of W/C. G. C. Cunningham, O.B.E., as technical sales adviser on aeronautical, radio and electronic equipment. W/C Cunningham, who was until recently Signals controller of B.O.A.C., was awarded the O.B.E. for his work in developing North Atlantic communications during the war. He is now embarking on a two-month tour of the Middle and Far East, during which he will visit Rome, Cairo, Basra, Karachi, Bombay, Delhi, Calcutta, Rangoon, Bangkok, Singapore and Hongkong. Another recent Plessey appointment is that of Mr. H. L. Jarvis (assistant secretary) to the post of secretary, in succession to Mr. J. A. Smith; Mr. Smith is relinquishing the post as a result of illness, but will remain on the Board.

W/C. Cunningham.

* * *

All firms who have occasion to send any considerable quantity of goods by rail, road or air will find a great deal of helpful information in the *Transport Goods Guide*, a new edition of which (price 2s 6d, including postage) has recently been published by Iliffe and Sons, Ltd., Dorset House, Stamford Street, London, S.E.1.

* * *

To mark the company's 50th anniversary, gold watches were recently presented to employees of the Skefko Ball Bearing Co., Ltd., with more than 35 years' service. The occasion was also marked by publication of a souvenir brochure, in which the Bristol Brabazon (using SKF bearings in engines, controls and landing gear) is illustrated.

* * *

Since its formation in 1948 Air-Britain—an organization for those interested in aviation—has recruited members in twelve other countries, and a first international conference is to be held in London next Saturday, February 25th, with Mr. Y. Galitzine, of Hunting Air Travel, as chairman. Details from H.Q. at 31, First Avenue, London, W.3 (Shepherds Bush 3095).

* * *

Open to British-born girls of 16 to 20 years of age who are interested in aircraft research, design or production, the second Women's Legion Scholarship in Aeronautical Engineering is announced by the Women's Engineering Society, from whom (at 35, Grosvenor Place, London, S.W.1) details are obtainable. Applications for entry must be received by April 30th.

* * *

Mr. T. P. Wright, vice-president for research at Cornell University, has advised the R.Ae.S. that the 8½ft × 12ft variable-density wind tunnel at Cornell Aeronautical Laboratory is not being fully used and could be made available to British constructors for model tests. Enquiries should be made to Dr. C. C. Furnas, Director, Cornell Aeronautical Laboratories, 4455, Genesee Street, Buffalo, N.Y.

A "MARIE CELESTE" MYSTERY was scented by the crew of an R.C.A.F. Lancaster who sighted and photographed this abandoned steamer near the entrance to Hudson Bay. The story has a sequel, referred to in the paragraph above.

AMERICAN NOTEBOOK

By

Stanley H. Evans
F.R.Ae.S., A.F.I.Ae.S

THE COMET'S TRAIL

SOME interesting discussions, percussions and repercussions are now going the rounds in America over the current performance of the de Havilland Comet. Admiral DeWitt Ramsey (president of the U.S. Aircraft Industries Association, American equivalent of the S.B.A.C.) recently told a Los Angeles audience that: "Probably no aviation subject has generated more turbulence in recent months than the problem of developing prototype transport aircraft. Ever since the Comet first flew, we in Washington have been deluged with enquiries as to where are the American jet airliners, and when are they expected to fly. Each time the Comet makes a new flight or the Canadian Avro Jetliner flies, we feel the impact in our offices—or, rather, our phones do."

Admiral Ramsey went on to say that no one in the American aircraft industry had complete and definitive answers about the jet transport situation at this time. It was unquestionably true, he admitted, that the British and Canadians had jet airliners flying and that they in America did not have any even ready for the assembly lines. "But," said the Admiral, "it is not true that this means that America is lagging all along the line in the development of jet aircraft. On the contrary, our manufacturers probably excel the British in actual experience with the design, development and operation of all of the many types of jet aircraft required for modern warfare."

To highlight this point, Admiral Ramsey emphasized that American manufacturers had designed and developed some 34 different types of military jet and composite jet-cum-piston-engined aircraft, whereas the British displayed only 24 types of such craft, including the turbojet and turboprop airliners, in their shop-window at Farnborough last year. Which seems a quaint sort of debating point to this observer—rather as if the function of Government is to develop a super seven-ocean Navy for global prestige, and then forget all about the mercantile marine that is surely the Navy's chief *raison d'être*. (Trade may follow the flag, but the flag would soon be at half-mast without the trade.)

Then the Admiral agreed that American manufacturers *are* very much concerned about the degree of progress achieved by the British, with no fewer than six turbine-powered transports now flying in the civil airliner class. He also went on to say that the A.I.A. has an industry committee at work trying to resolve the many conflicts of interest and legislative problems entailed, so that jet transport development could be accelerated. Previous legislation that had been introduced in Congress was objectionable to many manufacturers because it was unduly restrictive. During the past month or so top engineering executives of the aircraft industry have been conferring in Los Angeles with a view to making recommendations to the A.I.A.

"Flight" photograph.

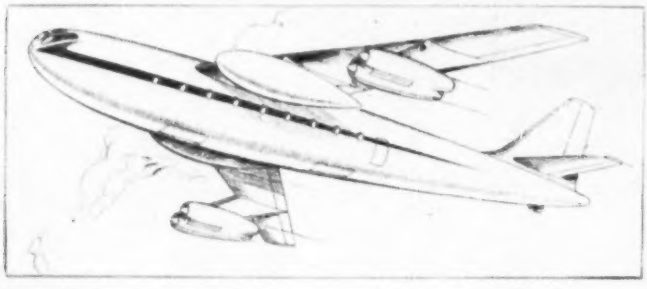
Bell-ringer: "Each time the Comet makes a new flight . . . we feel the impact in our offices—or, rather, our phones do"—the president of the U.S. Aircraft Industries Association.

HARD CURRENCY

Mr. Wellwood Beall, Boeing's energetic V.P. in charge of engineering and sales, whom we have previously quoted at some length on this subject (*Flight*, September 29th, 1949), has been taking a leading part in these discussions. Mr. Beall seems to feel that the British jet designs are now so firmly frozen that if the Americans start right away to provide the financial backing for prototypes, they can pick up where the British have left off and bring out something better. He says they have the technical know-how (based, presumably, in the case of Boeing, on their B-47 bomber), the engineering talent, the facilities, and a great deal of enthusiasm for the future of such a project. The one big problem is money. (We have been told on several occasions recently that the British turbined flock has been gold-plated with American Marshall dollars!)

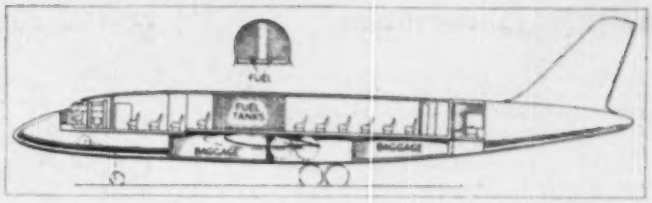
Apparently the Boeing philosophy of getting an existing Government agency to carry the civil jet torch is beginning to break through the opposition of the rest of the airframe industry, and there are signs that Douglas, Lockheed, Northrop, Convair and possibly Martin, will swing into step in the procession. Credence is lent to this view by the fact that the A.I.A. has now come out with its official blessing recommending that an existing Government agency be made responsible for the purchase of prototype aircraft of advanced design. No mention is made of any particular agency, nor to the financial mechanism for producing these potential world-beaters on a quantity basis.

Mr. Beall, however, is much more specific. He has now gone on record with a definite proposal that the Civil Aeronautics Administration sponsor the construction of new jet transports and the subsequent leasing of them to the scheduled airlines. In publicly airing his views, Beall states that the plan could be administered without



Odds and pods: an artist's conception of a mythical Boeing "civvy-jet" based on the B-47 Stratojet bomber.

major new legislation or the creation of new Government agencies and with a minimum of expense. "Such a plan," he says, "if adopted, would give the U.S. manufacturers and airlines the answer to the problem of how to compete effectively with the threat of British domination of future air transportation. It offers a practical solution to the problems of financing, testing and producing such aircraft in quantity."



A Lockheed proposal for a four-jet 40-seater (see p. 437, *Flight*, September 29th, 1949). Fuselage tanks, flanking a communicating aisle, would separate the two cabins.

Under Beall's suggested plan—which seems to have caught the C.A.A. somewhat off-guard—that authority would conduct design competitions for various American jet transport types. Two companies in each category would be reimbursed for construction of prototype aircraft. After certification, the C.A.A. would purchase production aircraft and lease them to U.S. airlines, with reimbursement on a basis of revenue ton-miles actually flown. Assuming that the C.A.A. is the proper Government agency, special appropriations would have to be set up by Congress for carrying out this plan, of course. Mr. Beall, in fact, is now in the process of persuading the American taxpayer to foot the development bill via the C.A.A. and the A.T.A.—precisely along the lines so successfully worked out (after much trial, travail and costly error) by that arch-enemy of free enterprise, the British welfare state.

Mr. Beall goes on to point out the inability of any single manufacturer or airline to finance such a project (Boeing's estimate that they will lose some $25 million on the 55 Stratocruisers nearly completed)—and cites the parallel case of the U.S. Maritime Commission in fostering American-flag shipping by financial subsidy—horrid word! He contends that a C.A.A. leasing arrangement would combine the maximum efforts of all three interested parties—C.A.A., airlines and manufacturers—in seeing that efficient, practical turbine-powered transports not only are designed and built, but are commercially operated. Naturally, any airline desirous of outright purchasing of such new equipment could do so by dealing directly with the manufacturer.

Anyway, whatever the *modus operandi* finally agreed upon, it is a fair certainty that the next few months will see the real start of an intriguing jet-transport race between Boeing, Douglas and Lockheed, the three leading American manufacturers in the civil transport field. We say this because it is no secret that the preliminary design-studies have been shuttling around the engineering conference rooms of these three firms for the past year or more, awaiting the financial "GO" signal. (Parenthetically, we like the American definition of a conference as a "place where conversation is substituted for the dreariness of labour and the loneliness of thought.")

In our "Notebook" entry of September 29th, 1949, we discussed certain tentative proposals of Lockheed and Boeing for a 1955 jet airliner in the 40/50-seater category, and, since some of our remarks have been challenged by Mr. Beall, we feel it only sporting on our part to keep the ball in play over the net—on the principle that the better the opponent the better the game. Mr. Beall, we might say, is clearly a top-ranking player in the modern style—that is, a thoroughly aggressive net player with a sparkling volley that appeals to us.

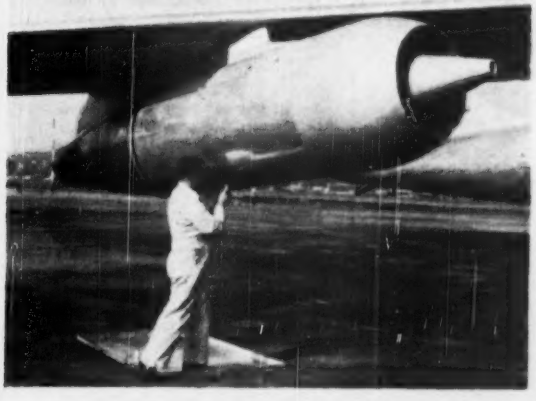
MILITARY HANDCUFFS

We stated our own personal credo that designers of civil jets need to get clear away from the military-missile school of design. It seems obvious to us that the designers of the Comet have escaped the military handcuffs and used astute judgment in keeping well clear of the higher machinations of Dr. Mach, as characterized by the fully sweptback, high aspect ratio, razor-blade wing, exemplified in the Boeing B-47 and other recent military jets. We have also gone on record as suggesting that the peduncular power-plant is retrogressive aerodynamic design and, in our view, only a passing fashion-cycle bred under Hitlerian duress.

Mr. Beall, in passing the ball back to us, says that we are a little amiss in relating the Boeing jet-transport studies too closely with their B-47. "It is true," he goes on to say, "the XB-47 does not carry fuel in the wing for two reasons: (1) the wing is extremely thin; and (2) military requirements dictate self-sealing tanks which make the problem correspondingly difficult. All of our commercial studies carry fuel in the wings, outboard of the fuselage, or for the shorter range aircraft, separate fuel tanks. In this connection we note that the Comet utilizes a fuselage fuel tank in addition to wing cells." [This is not so.—ED.]

The accompanying sketch (based on a drawing in our American contemporary, *Aviation Week*, and on other illustrations) purports to show a proposed Boeing jet transport to accommodate 38-40 passengers over ranges up to 2,500 miles at a cruising speed of 500 m.p.h. According to *Aviation Week* their sketch shows a logical transport adaptation from the B-47 six-jet bomber, using identical sweptback wing and tail surfaces. (A recent Boeing communique, however, specifically mentions that the civil jet would have to be provided with more wing area.) Four jet units are slung below the wing at the outboard pod stations in two double nacelles. Two huge fuel tanks are suspended at what are the inboard power unit stations on the B-47, leaving the fuselage volume open for passengers and cargo. Missing from the transport version are the built-in JATO units on the aft section of the B-47 fuselage. Landing gear would presumably use the same tandem bicycle-type main wheels retracting into the fuselage, with smaller outrigger wheels at the wing tips or engine pods.

More recent jet-airliner studies (*Flight*, January 5th, 1950, page 11) show a somewhat similar conception, but without the external fuel tanks. The latter, presumably, have reverted to the fuselage once more, as in the B-47.



Terra firma maintenance: The external underslung engine pods of the Boeing B-47. Coupled with the flexible wing, they also function as dynamic balance-weights under certain gust conditions.

AMERICAN NOTEBOOK . . .

(It will be recalled that recent Lockheed civil jet proposals also feature large fuel tanks amidships in the fuselage, due to the thin backswept wing.) All these design studies, in fact, clearly show the cramping effect of the military handcuffs and it is difficult to escape the feeling that most of them are mere trial balloons sent up to be shot down.

But we like the forcing nature of the Beall gamesmanship, for there is nothing more tiresome than the defensive base-line player or the stonewall plugger. And so, commenting on our previous remark that underslung pods are a sign of retrogressive civil design, our worthy Boeing opponent comes up with a crisp volley to our feet by saying: "It would seem to me that the performance of our XB-47 would give some clue regarding the extent of the retrogression. As you know, our XB-47 made a cross-country hop at an average Mach Number of 0.80 with speeds in excess of 600 m.p.h."

As a matter of record, we believe that the average *ground* speed on this trip clocked 608 m.p.h., but as the aircraft was flown between the 30-40,000ft level most of the way, an M of 0.80 would mean a cruising air speed of about 530 m.p.h. at 35,000ft, which, admittedly, is distinctly better than we originally predicted for the XB-47 prototype with J-35 4,000 lb engines. Furthermore, we are prepared to credit the production B-47A (mounting J-47 5,000 lb jets) with an optimum range cruising speed of 560 m.p.h. at 35,000ft, which gives a corresponding M of approximately 0.85. We cheerfully agree this is NOT retrogression in the bomber art, but it seems to us that friend Beall is artfully mixing his shots, giving the ball a military twist most of the time. (This is natural enough because 80 to 90 per cent of the play is for military honours. For civil honours, however, the rules of the game are quite different—so much so, that we believe it necessitates a totally different style of play. It also demands a different mental approach.)

PROOF OF THE PODDING

Citing the "fact" that Boeing's "have the most advanced privately owned wind-tunnel in the world to-day," Mr. Beall says "We did not arrive at the pod without experimentation, for it is the least obvious configuration; and as a matter of fact, it was more or less of an accident that we tried it at all."

Which is not to say that we are underrating a very keen opponent, for Mr. Beall displays a neat turn of the wrist in firing off these six shots in a row on behalf of the peduncular poddery proponents:—

(1) The external pods serve as an excellent dynamic balance for the flexible wing, tending to unload it in gusts and to prevent flutter.

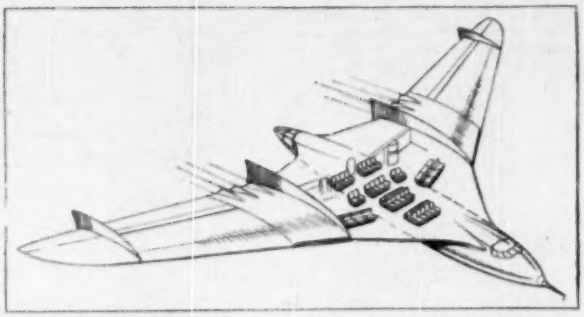
(2) We think it is extremely safe. An engine fire is well isolated and can be easily controlled. If an engine explodes, no basic structure is affected.

(3) The increased efficiency of the wing, made possible through this configuration, more than compensates for the drag of the pedestal.

(4) Changes in power units are simplified because the basic structure is unaffected. (We have already made one change in engine types and anticipate many more during the life of this aircraft.)

(5) Maintenance is greatly simplified. The pods are located where they may be reached from simple ground stands and the engines are completely exposed with the removal of the cowling.

(6) The cone of noise intersects the fuselage at a point farther aft, thus reducing cabin noise and permitting more efficient use of the available volume.



1955 pipe-dream (with American tobacco): A mythical long-range civil type to accommodate 80-100 trans-oceanic passengers. Based on the Northrop B-49 Jet-wing, it would have a gross weight in the 250,000-lb class and a wing span of about 200ft.

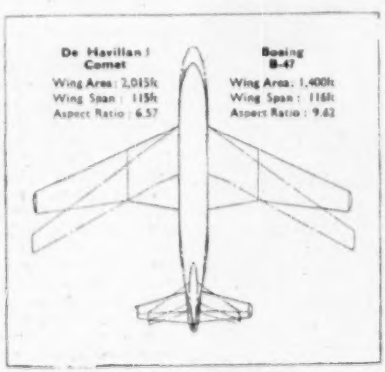
Following up to the net for the kill, Mr. Beall declaims: "We are firmly of the opinion that this underslung retrogression will make a far better commercial application than nesting the engines solidly within the basic structure of the wing at its most critical point, as is done on the Comet. In the last analysis, we think we can prove it with performance." (The "proof of the podding," in other words.)

Out of the six shots fired back at us by a well-armed opponent, only No. 2 is likely to be a bit troublesome in returning, for it does have the look of a potential winner in the present state of the art; albeit exploding jet units, wherever they are installed in or out of the airframe, are hardly conducive to mass air travel. But the engine fire hazard is still very much with us and, on the face of it, the isolated engine pod certainly does *look* safer than a submerged unit within the airframe. It would be enlightening, therefore, to know what the proponents of the *in situ* technique have to offer in rebuttal, since it may be a very good scoring point for the poddists—at the moment, anyway. Is there any evidence to show that British jet paraffins are safer in a crash than American jet gasolines?

Point No. 6 is now giving rise to a certain amount of argumentative give-and-take by the turbojet purists. The two points of view are well exemplified in British practice by the D.H. Comet and the Avro Jetliner. Aerodynamically, there can be little doubt that the Comet is the more logical and cleaner solution, but it is equally certain that a good deal of research and design development will have to be directed towards this problem of jet-pipe geometry. Is there any compelling reason why the trailing angle of the tail-pipe cannot be directed outboard by a reasonable amount, so that the exhaust cone clears the passenger part of the cabin at least? In frankly recognizing this problem, however, we can see no justification whatever for locating the power units of a civil jet far outboard on the wing *à la* current Boeing proposals.

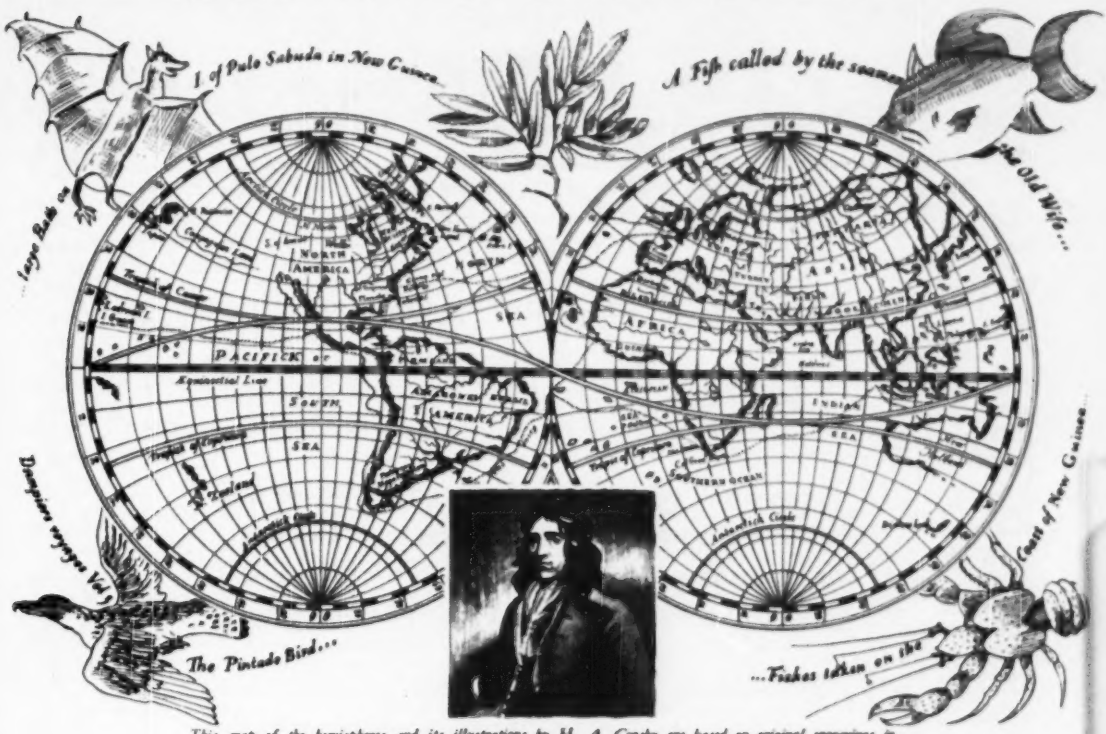
It is perfectly true that the latter concept is closely allied with Point No. 1, the aero-elasticity criteria of the thin, high-aspect-

(*Concluded on page 263*)



Wing-plan comparison: de Havilland Comet civil jet versus Boeing B-47 military jet. Although the B-47 is at least 50 per cent heavier in gross weight than the Comet, there is a big difference in wing area and aspect ratio.

FOLLOWING THE GREAT EXPLORERS



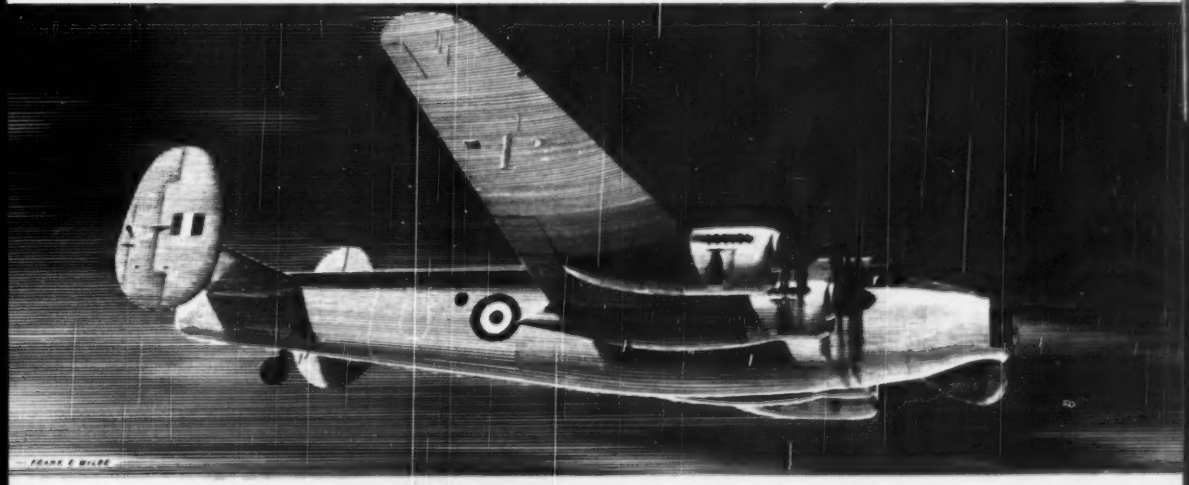
This map of the hemispheres and its illustrations by H. A. Crosby are based on original engravings in William Dampier's "A New Voyage Round the World" published in 1697

"A New Voyage round the World"

by WILLIAM DAMPIER

Although it took William Dampier twelve years to buccaneer his way round the world he had the true spirit of reconnaissance. A born navigator, he established an unrivalled reputation for the accuracy of his descriptions. He made his voyages at the end of the 17th century when the accuracy of his navigational aids left much to be desired.

How much better off would he have been as captain of the new Avro Shackleton, designed and equipped to range the seven seas.



FRANK E. WILDE

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More Profit per Ton-mile—

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Compared with the most modern liners in its class now in world service, the Comet, by reason of its great speed, is expected to be about twenty per cent. cheaper per ton-mile.

Furthermore its speed enables it to do at least half as much work again per year and with earnings in proportion. Speed thus yields a multiple economy.

These figures are based on the performance of the Comet to-day; developments are already under way which will improve them.

Moreover the Comet's incomparable simplicity brings further intangible but substantial advantages in maintenance, affecting operational convenience and cost.

THE DE HAVILLAND AIRCRAFT COMPANY LTD · HATFIELD · HERTFORDSHIRE

No. 4 SQUADRON R.A.F.

The History of One of Our Most Famous Units

By JOHN YOXALL

WHEN the Air Battalion of the Royal Engineers ceased to exist and the newly authorized Royal Flying Corps came into being in 1912 the establishment allowed for the Central Flying School and seven operational squadrons in the Military Wing.

The old airship company became No. 1 Squadron, its companion aeroplane company was renamed No. 3 Squadron, and No. 2 Squadron was formed from a nucleus of pilots at Farnborough. As recruits became available from C.F.S. at Upavon, so these earlier units were able to throw off branches, and in September of the same year a flight from No. 2 Squadron became the nucleus of No. 4 Squadron. In command was Major G. H. Raleigh, who had served with distinction in the Boer War, and who had been seconded from the Essex Regt. to the Air Battalion just before the birth of the R.F.C.

As soon as establishment was complete a move was made to Netheravon, and there the unit started to practise reconnaissance, artillery co-operation, and cross-country and night flying. The first aircraft taken on charge were five Breguet biplanes, a Cody and some B.E.s. The Breguets, which rejoiced in the soubriquet of "Coffee-Pots," had single struts and spars and spring-loaded variable incidence; there were, of course, snags: either the air loads overcame the springs, or the springs tired and would not return the wing to its normal incidence.

Lt. P. H. L. Playfair (now Air Marshal Sir Patrick Playfair, K.B.E., C.B., C.V.O., M.C.), one of the very early members of No. 4, recalls for us some of the peculiarities of these aircraft. "I was," he writes, "posted to No. 4 Squadron when it was formed by throwing off a flight from No. 2 Squadron, which latter squadron I joined on being seconded to the R.F.C. from the Royal Field Artillery in August, 1912. The unit was then equipped with B.E.2as and Breguets—the latter a strange aircraft, which, to the best of my recollection, had three marked eccentricities: wheel steering; a very flexible warping wing, so that while taking-off there was no control until flying-speed was reached; and a 100 h.p. Monosoupape engine, in which the intake was through the crankshaft and up through the piston heads. To follow its later career, it went to the bad completely after it was fitted with a stationary engine; in fact, I think I am right in saying that hardly one escaped crashing on the delivery flight to Farnborough."

With its other aircraft, the B.E.2as (which were designed and test-flown by Mr. (now Sir) Geoffrey de Havilland at the Royal Aircraft Factory) No. 4 was very active. Its air mileage for 1913 was nearly up to that of the older units, all of which did over 50,000 miles each—at an average speed of about 45-50 m.p.h.

In 1913 also began the elements of finding a night-flying technique. Capt. G. S. Shephard and Lt. K. P. Atkinson experimented with an electric searchlight on their aircraft, and in November trials were started with Müller parachute flares to enable pilots to select suitable ground with a view to landing by the aid of their searchlights. It was found, however, better to release two flares, one at 1,500ft and the other at 500ft, and then to land by their light alone. The Müller flares fell at 500 ft/min. These night-flying experiments led to the evolution of the landing "L" as laid down in the 1914 R.F.C. Training Manual, and so far-seeing were these instructions that they remained unaltered in the 1916 edition.

During June, 1914, a concentration camp (using the word in its true military sense) was held at Netheravon, and the whole Military Wing of the R.F.C. forgathered. Though exercises, training and lectures were the order of the day there can be little doubt that the opportunity to get together and talk "shop" was the most useful feature of the camp. It was at this camp that some emphasis was placed on the use of wireless signalling for aircraft. The two authorities on the subject were Lts. Lewis and James of No. 4 Squadron. These two went to France as a wireless flight with the unit, and from this flight grew the whole complicated W/T and R/T system as we know it in the R.A.F. to-day.

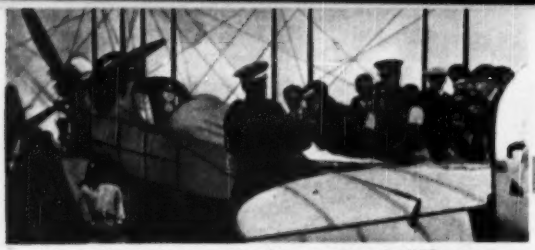
Events moved fast in the summer of 1914 and on July 30th the Army Council agreed to send No. 4 to Eastchurch to reinforce what was then known as the R.F.C. Naval Wing, but which the Admiralty stubbornly refused to recognize as anything but the Royal Naval Air Service.

By the evening of August 12th, eight days after declaration of war, the aircraft of No. 4, together with those of Nos. 2 and 3 Squadrons, were assembled at Dover, whence they took-off for France the following day. "C" flight of No. 4 was left behind to continue the naval patrols. Not all the aircraft got over without incident, for some were damaged on the way through following their leader, Capt. F. J. L. Cogan, one of the flight-commanders, who forced-landed because of engine failure.

For a picture of these naval patrols and the flight to France we are again indebted to Sir Patrick Playfair. "Before going to France," he recalls, "we were re-equipped with B.E.2as and Maurice Farmans. I can remember going out in one of

(Left) At Lilbourne, during the army manœuvres of 1913. Standing: Lt. P. H. L. Playfair, Lt. Mills, Capt. Soames, Capt. Broad, Capt. Connor (No. 5 Sqn.), Maj. Raleigh (C.O.), Maj. Higgins (No. 5 Sqn.), —. Sitting: —, Lt. Gould, Lt. Small, Lt. Anderson. (Right) September, 1912: Capt. Raleigh out for early morning flying in one of the squadron's Breguets at Farnborough Common.

From Sir Patrick Playfair's album. *From "Flight"*



Lt. Playfair (hatless, centre) making a report at the 1913 manoeuvres in the East Midlands. The aircraft is a B.E.2.

CODY MILITARY 1912

BRÉGUET 1912

NO. 4 SQUADRON R.A.F. . . .

these from Eastchurch to hunt Zeppelins, armed with rifle and rifle grenades. I think a certain amount of mental confusion existed in my mind as to whether to throw them or shoot them. Word had gone forth that a certain gallant C.O., who afterwards attained deservedly exalted rank, had ruled that in the event of neither the shooting nor the throwing of the grenades attaining the desired result, the alternative form of attack should consist of ramming the airship head-on. What with one thing and another I was glad not to encounter any. [Since the ceiling of the Zeppelins was at least twice that of a B.E.2a, an encounter was rather unlikely, but this was not realized at that time.—Ed.]

"The squadron flew to France on August 13th, and, incidentally, Sergeant-Major (or Sergeant) Hart, later Squadron Leader Hart, and I were the only two members of the R.A.F. who can lay claim to having been in the first contingents of the R.F.C. and R.A.F. to arrive by air in France in both wars.

"I remember being with the aircraft that followed Captain Cogan down in his forced landing in France, and I can still remember the roughness of the field he was unlucky enough to choose. I also remember that after refuelling and resuming the flight I was not above landing again to ask a passing pedestrian the way to Amiens, though this is an episode I have kept a dark secret until to-day."

The first aerial reconnaissances by the R.F.C. in the face of the enemy were made on August 19th by Lt. G. W. Mapplebeck of No. 4 Squadron on a B.E. and Capt. P. B. Joubert de la Ferté of No. 3 Squadron on a Bleriot monoplane. Capt. Joubert's story was told in the history of No. 3 Squadron (*Flight*, March 17th, 1949). Lt. Mapplebeck's instructions were to find out whether enemy cavalry were still in force in the neighbourhood of Gembloux. A reproduction of his actual report appears at the foot of the facing page.

The unit was at the time stationed at Maubeuge, but the beginning of hostilities resulted in very fluid warfare and airfields were changed frequently. On August 24th, the squadron moved back to Le Cateau, and the same day the enemy advance by Von Kluck's right wing was seen by Capt. Shephard and Lt. Bonham-Carter on patrol to threaten to envelope the British Army. It was largely owing to this reconnaissance that the Army was able to make its gallant fighting retreat from Mons and escape encirclement. During the battle of the Marne the wireless machines of No. 4 had been attached to the army corps direct, but little use had been made of them. On the Aisne, Lts. James and Lewis were the first to observe for the artillery. These two were enthusiastic beyond measure, and Gen. Sir Horace Smith-Dorrien, in a telegram dated September 27th, 1914, used these words when referring to their work: "To-day I watched for a long time an aeroplane observing for the six-inch howitzers for the 3rd Division. It was, at times, smothered with hostile anti-aircraft fire, but, nothing daunted, it continued for hours, through a wireless installation, to observe the fire and, indeed, to control the battery with most satisfactory results." Both of these officers died at separate times over the Ypres salient by direct hits from A.A.—Capt. James over Verlorenhoek in July, 1915, and Col. Lewis at Wytschaete in April, 1916.

On September 20th, 1914, "C" Flight, which had been left behind, rejoined the squadron. It was equipped with Maurice Farman "Shorthorns" fitted with Lewis machine guns, and was thus the first fighter unit on record to be designed specially for that purpose. The aircraft were, however, much too slow to force a decision and the results were very little better than they were for aircraft on which only rifles and pistols were carried.

Of all casualties, undoubtedly the most regrettable are those sustained from one's own guns. Aircraft recognition in the 1914 war was non-existent and, despite a large Union Jack painted on each of the machines, No. 4 was early to suffer from light trigger-fingers. In bad weather on October 29th, Lts. Hosking and Crean were at 1,000ft ranging for one of our batteries, when they were shot down in flames by rifle fire from our own infantry. It was realized that, in conditions of low visibility, the Union Jack became very indistinct, and the outcome was that the French system of roundels was adopted, though with the red in the centre in place of the blue.

Shortly after the arrival of "C" Flight, the Wireless Flight was absorbed into the newly formed H.Q. Wireless Telegraphy Unit, under Major Musgrave, and No. 4 ceased to hold the responsibility of supplying W/T aircraft for army corps.

Another change came at about this time. From the outbreak of war the four squadrons which took the field were all directly controlled by the R.F.C. commander, Brig.-Gen. Sir David Henderson, but it soon became apparent that subordinate army commanders would have to have aircraft at their disposal. As already shown, this had occurred to some extent on the Marne and Aisne. During the first battle of Ypres it was found necessary to detach squadrons instead of flights; these, No. 4 among them, became Corps Squadrons. Later, between the wars, they were to become known as Army Co-operation Squadrons and eventually in the 1939-45 war to develop into Tactical Reconnaissance and Photographic Reconnaissance Units.

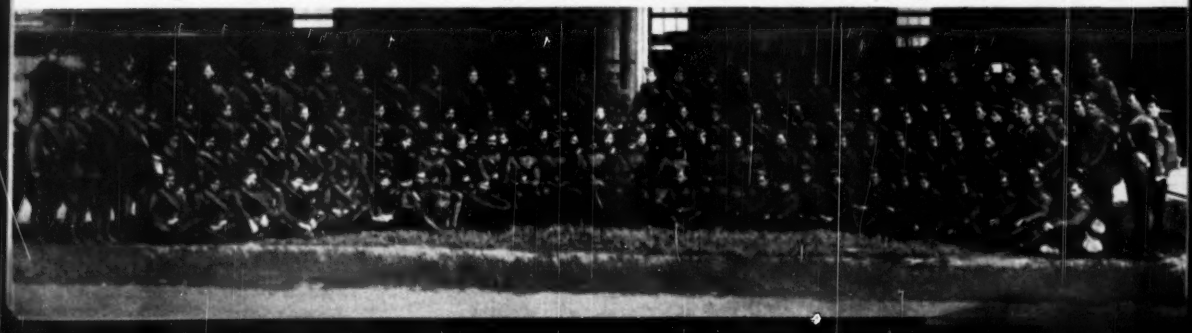
By the third week in October, 1914, "A" and "B" Flights had relieved No. 6 Squadron at Poperinghe, to work with the Fourth Corps. The Maurice Farman Flight operated from St. Omer and from there started hostile patrols. It is recorded

From "Flight"

COMMANDING OFFICERS

Maj. G. M. Raleigh	Sept., 1912
Maj. H. R. P. Reynolds	20.1.15
Maj. C. A. M. Longcroft	29.1.15
Maj. F. F. Waldron	21.7.15
Maj. G. E. Todd	29.9.15
Maj. V. A. Barrington-Kennett	17.2.16
Maj. T. W. C. Carthew	13.3.16
Maj. L. Jenkins	20.9.16
Maj. R. E. Saul	2.12.17
Maj. H. B. Prior	6.1.19 to 25.2.19
S/L. C. H. B. Blount	30.3.20
S/L. J. C. Slessor	4.4.25
S/L. N. H. Bottomley	15.10.28
S/L. C. E. H. Medhurst	6.1.30
S/L. L. P. Simpson	3.1.31
S/L. F. M. F. West	4.10.33
S/L. E. J. Kingston-McLoughry	16.1.36
S/L. G. H. Loughman	10.5.37
S/L. J. O. B. MacGregor	11.1.38
S/L. G. P. Charles	6.8.39
S/L. P. L. Donkin	7.9.40
W/C. G. P. Charles	11.9.40
S/L. Mullock	29.10.40
W/C. P. H. R. Saunders	9.12.40
W/C. G. P. Charles	17.5.41
W/C. P. H. R. Saunders	1.6.41
W/C. G. E. Macdonald	29.10.42
S/L. R. H. D. Rigall	15.3.43
P/L. A. S. Baker	17.12.43
S/L. R. J. Hardiman	27.12.43
S/L. W. Shepherd	15.5.44
S/L. C. D. Harris St. John	21.5.45
W/C. M. P. C. Corkery	20.9.45
W/C. R. L. Jones	15.5.46
S/L. B. Everton-Jones	15.11.47
S/L. C. P. N. Newman	14.9.49

The original No. 4 Squadron and their permanent hangars at the Concentration Camp in 1914. Dress is "with greatcoats en banderole."



M. FARMAN LONGHORN 1913 | B.E.2, 2a, 2b. 1913 | M FARMAN SHORTHORN 1914 | SOPWITH TABLOID 1914 | MARTINSYDE 'A' 1916

that during a patrol by Lt. G. N. Humphreys, on October 31st, 250 Lewis-gun rounds were fired at "an enemy convoy. This was probably the first ground-strafing attack ever made.

Reports of large-scale enemy concentration at Ghistelles led to an attack by four of the squadron's aircraft from a point near Ostend. The raid was led by Major Raleigh. Capt. H. J. A. Rocke was killed on the way to the target, but Capt. R. P. Wills and Lt. T. W. Mulcahy-Morgan returned safely with the C.O. On the following day, however, Major Raleigh was killed when his machine fell into the sea off Dunkirk.

By the end of January, 1915, the Maurice Farmans had gone out of operational use, for their performance was hardly up to fighting standard. For those who fly Vampires and Meteors to-day these Farman figures will be of interest: Engine, 70 h.p. Renault; maximum speed at ground level, 66 m.p.h.; climb, 3,000ft in 15 minutes; empty weight, 1,441 lb; military load, including crew, 363 lb; wing loading, 3.6 lb/sq ft. Mach numbers did not worry them! When the Maurice Farmans had gone, the squadron equipment comprised seven B.E.s, four Voisins and one Martinsyde.

The first night bombing raid followed instructions to attack a rail junction at the S.E. corner of Lille. Three aircraft, flown by Capt. Barton, Lt. Mapplebeck and Lt. A. St. J. M. Warrand, were detailed, and on March 10th, 1915, they went to Bailleul, in order to be as near the target as possible. Each aircraft carried two 100-lb bombs in carriers *designed and built* in the squadron workshops. Cockpits were fitted with electric lights for instrument- and map-reading and on the ground two signalling lamps were placed five miles apart on the direct line to the objective, to act as a guide. A start was made at 0445 hr on March 11th. Barton's machine was wrecked soon after taking-off, and Mapplebeck put back with minor engine trouble; but Warrand was known to have passed over the first light and 20 minutes afterwards two explosions were heard. Mapplebeck started again and passed over the first light, but neither he nor Warrand returned. Later it became known that Warrand was killed, but Mapplebeck escaped and returned to London in April *via* Belgium and Holland.

In April the squadron added to its bag. On the 17th, Capt. Vaughan and 2nd Lt. Lascelles, on a reconnaissance to Bruges, met and chased an Aviatik. Using a cut-down Service rifle, Lascelles fired 24 rounds. The Aviatik descended behind the French lines, where the observer was captured. The pilot was dead, having been shot through the head.

It must be remembered, of course, that incidents like those recorded above were the exception rather than the rule and that No. 4's main duties were still reconnaissance and artillery observation.

During the summer of 1915 things in the air livened up a great deal and fighting became established as a definite branch of air warfare. Equipment of specialised squadrons became the aim, but until that came about (in 1916) Corps Squadrons each had on charge one or two fighting scouts for escort duties and to do hostile patrols. No. 4 had a Bristol scout and a Morane monoplane.

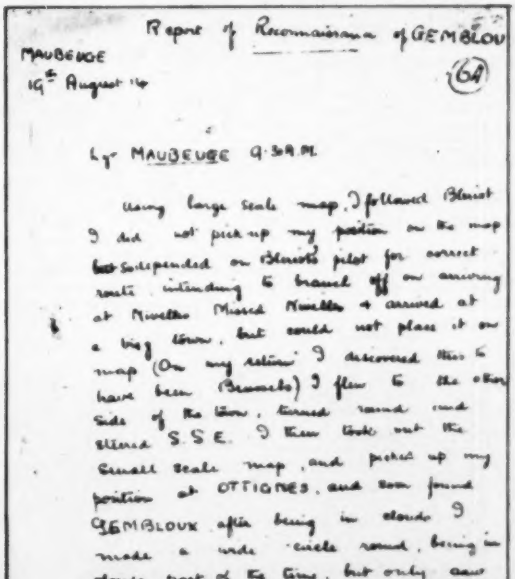
In the autumn of 1915 the R.F.C. took on the new task of landing secret-service agents behind the lines. Lt. Woodhouse of No. 4 made one of the first two successful attempts. The official report (dated October 4th and signed "W. S. Brancker, Lt. Col., commdg. 3rd Wing") reads:—

"Lt. Woodhouse left the Baisieux landing-place yesterday evening at 4.30 p.m. accompanied by an agent. The agent was dressed in French uniform with plain clothes underneath and took with him two baskets of pigeons; one of these was carried in his lap and one on the plane outside the fuselage. Lt. Woodhouse climbed to 6,000ft and flew to the area S.W. of Serain (10 miles S.E. of Cambrai) at which point the agent had reported a good landing-place. On coming down to 1,000ft, however, Lt. Woodhouse was fired on from Serain and saw some carts moving on the road to the S.E. of the village. He therefore decided to try one of the other areas recommended by the agent, and as the latter had appeared very reluctant to go anywhere farther south, he turned N.W. to Bantouzelle (eight miles S. of Cambrai), landing at the S.E. corner of the wood to the S. of this name at about 5.30, just as dusk was falling—a ground mist assisted to conceal the operation.

"The agent was very quick in getting clear with his pigeons into the wood, but owing to a steep glide in landing, the forward cylinders got too much oil, with the result that they cut out and the engine stopped. The throttle had been set so that the engine would just run with all cylinders firing.

"The agent meanwhile had reached the wood, but seeing that Lt. Woodhouse was in difficulties started to return. Woodhouse, however, sent him back to the cover of the wood, and after putting his gloves into the air-intake pipes, sucked in petrol, and started the engine himself, getting into the aeroplane as she moved off. The tail skid had previously been

Facsimile of the report of the first reconnaissance of the Royal Flying Corps, made by Lt. G. W. Mapplebeck in a B.E



Report of Reconnaissance of GEMBLOUX

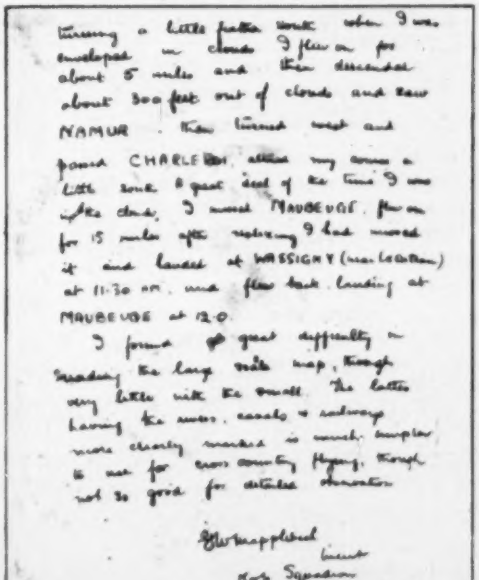
MAUBEUGE

16th August 14

(64)

Lt MAUBEUGE 9.39 AM

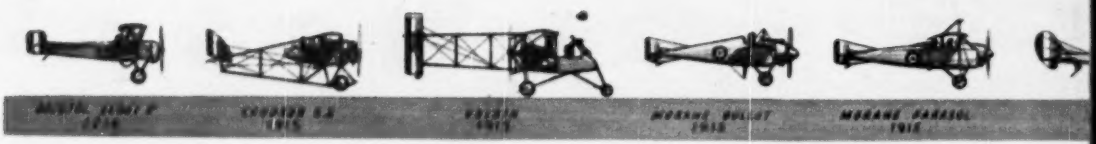
Using large scale map, I followed Bleriot 9 did not pick up my position on the map but subsequently on Bleriot's pilot for correct route intending to travel off on arriving at Nivelles Missed Nivelles & arrived at a big town, but could not place it on map (On my return I discovered this to have been (Brussels) I flew to the other side of the town, turned round and altered S.S.E. I then took out the small scale map, and picked up my position at OTTIGNIES, and soon found GEMBLOUX after being in clouds I made a wide circle round, being in clouds part of the time, but only saw a small body of cavalry moving South from a wood in a South easterly direction At this time I was at 3400 feet, and was just



turning a little further west when I was enveloped in clouds I flew on for about 5 miles and then descended about 300 feet out of clouds and saw NAMUR. I then turned west and passed CHARLEROI, altering my course a little south A great deal of the time I was in the clouds, I passed MAUBEUGE flew on for 15 miles after noticing I had passed it and landed at WASSIGNY (near Le Cateau) at 11.30 AM. and flew back landing at MAUBEUGE at 12.0

I found a great difficulty in reading the large scale map, though very little with the small. The latter having the rivers, canals & railways more clearly marked is much simpler & use for cross country flying, though not so good for detailed observation

G.W. Mapplebeck
Lieut
No 4 Squadron
Royal Flying Corps



NO. 4 SQUADRON R.A.F. . . .

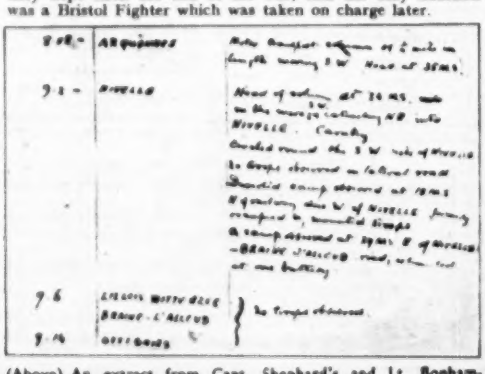
prepared so as to hold on to the ground as much as possible. On getting up to about 100ft, Lt. Woodhouse found that his engine was missing badly owing to over-oiling; he therefore landed again, and by dint of running the engine all out on the ground for short bursts, used up the surplus oil. At about 5.40 p.m. he started again and returned to our lines in the direction of Albert. It was, however, very dark, and in the neighbourhood of Maricourt he lost his bearings and eventually landed in the dark at about 5.40 p.m., about 16 miles E. of Amiens. He landed safely, but broke his propeller; how this breakage occurred he could not say. . . .

"I consider that Lt. Woodhouse deserves very high commendations for his coolness and determination, particularly in refusing the assistance of the agent when his engine stopped, as he thereby very much increased the agent's chances of escape."

The following year brought an ever-increased tempo, despite a lot of weather unsuitable for flying. That there was no such thing as bombing by radar through the overcast is evidenced by an account of a raid on the night of February 19th, in which Capts. Tennant and Horsfall set out on B.E.9 to attack an airfield at Cambrai. Horsfall's two 112-lb bombs failed to leave the racks, so Tennant went down to 30ft to score direct hits with all his seven 20-lb Hales bombs. He was so low that his aircraft was considerably damaged by the bursting bombs.

With the opening of the terrific battle of the Somme in July, 1916, came the extended use—first tried in 1915—of contact patrols whereby aircraft kept check on the positions of our troops and attacked strong-points, batteries, troops and transport. On one occasion ammunition and food were dropped to forward troops cut off from supplies. No. 4 did its share of these patrols and maintained as well its ordinary artillery-observation, reconnaissance, bombing and photographic flights. For the manner in which they aided the artillery the names of Capts. J. C. McMillan, A. A. Walser and T. M. Scott all appear in the records of excellent work during the hard battle.

Losses on both sides had been very heavy on the Somme, and at the close of the battle work went back to a more normal intensity until it flared up again in the spring of 1917, when the Germans retreated to the Hindenburg Line. In June of that year No. 4 moved north to take part in the operations at Messines and was re-equipped with 24 R.E.8 aircraft. These they kept until the end of the war, and the only addition was a Bristol Fighter which was taken on charge later.



(Above) An extract from Capt. Shephard's and Lt. Bonham-Carter's report on the advance of Von Kluck's 1st Army towards the British front, August 22nd, 1914. (Below) Capt. J. E. Tennant looping a squadron B.E. over Bulford Camp, Salisbury Plain.

Imperial War Museum photograph.

The third battle of Ypres opened in shocking weather, in spite of which contact patrols were flown. Sometimes as many as 44 patrols a day were made—still a record for No. 4, because their best day's total in the second world war was 43.

One thinks of 1917 aircraft as very flimsy by modern standards, but on occasions they took severe punishment and yet got home. An extreme case occurred on August 16th, when 2nd Lt. D. R. Starley, while on contact patrol with Lt. B. C. R. Grimwood as observer, had two longerons, a main spar, a centre-section strut, two fuselage struts and an aileron-balance cable cut through by a shell. The transmitter was destroyed and the observer wounded. Before landing—successfully—they wrote out a report and dropped it at Divisional H.Q.

For the first three months of the last year of the war, A flight was detached for duty with the Portuguese army in France. This detachment was later increased to two flights and became known as No. 4A Squadron; after a while it was broken up and relieved by No. 42 Squadron. As in the more recent war, the Germans had a final kick before giving in. This came in March, 1918, and No. 4 did its full share of harassing the enemy by both day and night. There was no airborne A.I. to help in those days and, at first, the night attacks were confined to moonlight periods. Later, however, a technique was worked out for using Michelin flares to light up the targets and for night reconnaissance work.

Anyone doing an artillery "shoot" in the latter stages of the 1914-18 war was very fully occupied, but never too busy to go immediately to the assistance of another R.A.F. aircraft in trouble. On October 3rd, 1918, Lt. H. N. Lock and Lt. E. A. Garrison, flying the squadron's sole Bristol Fighter, saw an R.E.8 of No. 53 Squadron being attacked by six Fokkers. Going at once to the R.E.8's assistance, the pilot, to his dismay, found his front gun jammed. The observer was then badly wounded in the stomach and again hit a little later. Nevertheless, he kept up a steady stream of fire until he was finally hit in the wrist by an explosive bullet. Although the Brisfit was almost a write-off, Lock brought it back safely to his own airfield and later received the warm thanks of the R.E.8's crew.

The tide of battle eventually turned, and when the armistice was signed on November 11th, 1918, the squadron was stationed at Ascq. Three months later it was reduced to cadre strength and proceeded to Northolt.

Unlike many other squadrons, No. 4 was soon revived. Toward the end of 1919 it moved to Uxbridge, and on April 30th, 1920, it was reformed, under the command of S/L. C. H. B. Blount, M.C., with H.Q., "A" and "B" Flights at Farnborough and "C" Flight at Stonehenge. It did not stay long at its home bases because later in 1920 "A" Flight was detached for duty with No. 11 (Irish) Wing at Aldergrove, and in the next year moved to Baldonnell, where it remained until it returned to the parent unit in January, 1922. Almost as soon as the squadron was again complete it was despatched to join the British Army of Occupation in Constantinople. The squadron embarked in H.M.S. *Ark Royal*, but on arrival at Kilia the aircraft were transferred to H.M.S. *Argus* and flown off. This was an entirely new experience for all the pilots.

Conditions in Turkey were grim. For the first fortnight of occupation the main problems were dust-storms and heat, but with the advent of rainy weather the airfield quickly became a quagmire. The aircraft could neither land, taxy, nor

H.M. King George V, while on a visit to the front in July, 1917, watching mechanics retrieving Lt. Longton's R.E.8. Controls had been shot away but neither pilot nor observer was hurt.

Imperial War Museum photograph.

take-off, and often sank axle-deep in the all-embracing mud.

Up to this time, since re-forming, the squadron had not had a photographic section. At Farnborough all processing work had been done for them by the School of Photography. At Kilia, for the first six weeks, the work was done on moonless nights in two bell tents and a three-ton lorry.

Towards the end of October gales of 60-70 m.p.h. were experienced. Hangars and tents were blown down and torn to shreds. With the winds came heavy rains, causing extensive flooding. The portable hangars—of the R.E.7 type—were in bad condition, having been packed when taken out of use during the war. When one was unrolled some letters and parcels dated 1916 fell out. One letter was signed "Two Old Ladies of Ascot"!

In an attempt to combat the mud problem a rough runway measuring 60 yards by 10 yards was made with wire netting stretched over canvas and pegged. By this means it was hoped to get the Brisfits near enough to flying-speed to avoid their sinking. It was found that even when on this "runway" they sank five or six inches, and conditions eventually got so bad that the aircraft had to stand on planks even when in the hangars.

A move was then made to Kilid el Bahr. The old-type horse-drawn G.S. wagons were found to be the only serviceable transport under such primitive conditions, and there were no hangars at all for those of the R.E.7 type had been torn to shreds, and no transport was able to bring up the heavier Bessonneau kind.

The squadron returned to England in September, 1923, again going to its old station at Farnborough, and in May, 1924, was re-designated No. 4 (Army Co-operation) Squadron. The old peacetime training programme became the order of the day, with reviews and displays to relieve the monotony.

In 1925, S/L. Blount, who had commanded the squadron for a longer period than any other C.O., was posted and his place taken by S/L. J. C. Slessor (now Air Chief Marshal Sir John Slessor, G.C.B., D.S.O., M.C., the recently appointed Chief of Air Staff). The new C.O. had joined the R.F.C. in the spring of 1915, and was wounded while flying a B.E.2e in 1916. He took over just in time for the King's review and the big manœuvres that took place in 1925.

The next year saw the General Strike and, because things looked somewhat ugly at times in the North, No. 4 was sent to Turnhouse to patrol railways in case of possible sabotage and derailment.

The stores of wartime aircraft were then coming to an end, and new designs were being tried out. The prototypes of the Vickers Vespa, Armstrong Whitworth Atlas, De Havilland Hyena and Bristol Boarhound were all sent to the squadron for trials, but it was not until 1929 that the Bristol Fighters were discarded in favour of the Atlas.

In addition to the usual camps with the Army and manœuvres, giving air-experience flights to Army officers and O.T.C.s of universities and schools, there was the occasional practice mobilization. One such practice started on October 20th, 1931. War equipment was fitted, reservists reported, and the squadron moved off to Sealand. By 1630 hr on the 23rd mobilization was complete. Another, held in 1934, took seven days before it was completed. One of the members of the squadron in 1934 was F/O. the Viscount Acheson, now a Group Captain. He has recalled for the present generation one of two of the "airfield" problems of an army co-op pilot of 16 years ago. "The work of Army Co-operation squadrons before World War II," he writes, "was based on the fact that the squadron aircraft could operate from ordinary fields in the neighbourhood of the Army H.Q. to which the squadron was attached. This necessitated the pilots being trained to land their aircraft, i.e., the Audax, in small fields.

"Secondly, the pilot of those days was sent up on sorties of anything up to two hours, during which time he covered a reasonably large area of ground and had to send his own messages back by Morse. Flying the aircraft was more or less coincidental, and his passenger was an air-gunner who confined his activities to looking out for 'enemy' aircraft.

"I remember that once, when 'A' Flight was attached to the one and only armoured brigade at Tilshead in 1934, our 'airfield' was a strip of ground on the side of a hill approximately 75 yards by 350 yards, the long leg being along the slope. Landing on this strip caused a deal of excitement (and amusement to the watching Army officers) whenever the wind was not up or down the long leg. Furthermore, the position was complicated when the tanks lost their way one night on returning from a manœuvre, and wandered across the middle of our strip, only failing to demolish our tents by a matter of six feet. The mess their tracks made of the strip made our life even more exciting.

"We had an extremely close liaison with the Army in those days and spent a great amount of our time between exercises and giving Army officers air experience. Liaison is as close as ever today, but it cannot be as personal as it was then."

S/L. E. J. Kingston-McLoughry, who is now an Air Vice-Marshal and A.O.C. No. 38 Group, took over command of No. 4 in January, 1936, and the first air liaison officer, Capt. J. R. Kirkman, R.A., was posted to the squadron. The same year the unit's present badge was approved by King Edward VIII. The motto "In Futurum Videre" (freely translated, "Looking Ahead") refers to the main role of reconnaissance. The badge (the sun in splendour divided per band by a flash of lightning) symbolizes "light for the army"—the black half indicating night reconnaissance. The flash has two interpretations, speed of action and the squadron's early association with wireless telegraphy.

It was S/L. Kingston-McLoughry, incidentally, who took the precaution of having Cody's tree at Farnborough fenced in and preserved.

Changes of aircraft had come. The Atlases had been replaced in 1931 by Hawker Audaxes and these were changed for Hectors in 1937. In 1938 the squadron was again re-equipped, this time with Westland Lysanders and with these, in 1939, No. 4 went to war for the second time.

On September 22nd, the rail party entrained for Southampton and embarked in the *Maid of Orleans* for Cherbourg. From there they proceeded to Mons-en-Chaussee where they were joined by the air party to become a unit of No. 50 (Army Co-operation) Wing, which was part of the Air Component of the British Expeditionary Force. S/L. G. P. Charles was in command.

On arrival at Mons-en-Chaussee it was found that the M.T. had not put in an appearance and the airmen were without either blankets or kit. Rations were drawn from the French Air Force: bread, jam, Camembert cheese—and horse-meat. The blankets eventually arrived on October 1st.

On October 12th a Wing parade was held of No. 4 and their companions from Odihant, No. 13 Squadron. Inspection was by A.V-M. Blount who had commanded No. 4 in 1920. Before settling down to the "phoney" war, there followed a long period of wondering whether the Germans would come through Belgium, as they had in 1914. The weather generally was bad, airfields were frequently unserviceable and anything—classes, football, boxing, P.T. and debating—was used to combat boredom. The Army were, of course, continually asking for air photographs of various areas and this gave the unit some real work to do.

(Above) Two early commanding officers: Left, Major Jenkins, who had the squadron in 1916 and, right, Major R. E. Saul, who succeeded him. (Below) The German airfield at Linselles, taken over by No. 4 in October, 1918, during the final advance.

Arctic weather in the Middle East: The squadron's Bristol Fighters in the snow at Kilid el Bahr, Gallipoli, January, 1923.

NO. 4 SQUADRON R.A.F. . . .

After the heavy rains came the hard frost of that winter and all but absolutely essential flying was barred, to avoid damage to aircraft on the frozen ground. In March, 1940, the initial equipment of the squadron went up from 12 to 18 aircraft and the unit was placed under operational command of the Second Corps (Gen. Brooke).

On the fateful May 10th, when Hitler moved, the airfield was attacked by Heinkels. The squadron's aircraft crossed the frontier at 0915 and therefore No. 4 led the Second Corps into Belgium—being about four hours ahead of any ground troops.

Difficulties were encountered in finding advanced landing grounds in Belgium but eventually the C.O. discovered a suitable spot at Aspelaere. No. 4's first contact with definitely identified enemy came on May 13th, by P/O Malins and L.A.C. Drewitt in a Lysander. This was at Tirlemont. The same day F/O. Vaughan did not return from his recce. and thus became the squadron's first casualty. The next day neither F/O. Clarke nor P/O. Barbaur returned.

On the 16th news was received of the French line on the Meuse being cut, and the retreat from the Dyle began. All recces. were to detect the enemy crossing the Dyle in pursuit. The airfield was heavily bombed by Ju87s, communication with H.Q. broke down and the squadron was put at 30 minutes mobility and moved back to Lille Ronchin.

On the 19th, two Lysanders of "A" Flight (P/Os. Plumb and Oldacres) were shot down and the squadron was ordered to stand-by to move in two echelons. Sorties were carried out all day. At 0930 the first echelon, under F/O. King, moved to Merville, where nine lorries were unloaded and returned for the second echelon. At Merville F/O. King was ordered to take his convoy to Boulogne and embark for England. Just before leaving Merville the convoy was bombed and machine-gunned by ten Heinkel 111s, but there were no casualties or damage.

At Boulogne F/O. King was instructed to proceed to Clairmarais, as the squadron was to operate from there. The squadron H.Q. was still at Lille Ronchin and operating with the Second Corps, then holding the line of the Escaut.

The general retirement put Lille Ronchin in an exposed position, and it was decided to withdraw to Clairmarais. Here "A" Flight of No. 13 Squadron, in the charge of F/L. Graham, was awaiting orders as to whether he should carry on to join his unit in England or remain with No. 4. W/C. Charles told him to stop with No. 4 "A" Flight and Squadron H.Q. arrived at Clairmarais, leaving the Wing Commander and "B" Flight at Ronchin, which was used by "B" and "C" Flights as an A.L.G. Eight special sorties were ordered by G.H.Q. to search for an armoured enemy column, believed to be in the St. Omer, Bethune, St. Pol area. Large armoured forces were found north of Hesdin.

The squadron was then ordered to stand by to move at five minutes' notice. This order came from G.H.Q., but the Air Component had ordered No. 4 to remain and operate. S/L. Maflett, therefore, visited G.H.Q. to get a ruling. At midnight he had not returned, and transport was sent to search for him in case his car had broken down. The transport returned to report that the bridges into St. Omer were barricaded. The adjutant took the initiative and ordered the squadron to move to Dunkirk. Just before departure a leave party arrived back from England, on a D.H.89.

Moving off at 0100 hr on May 22nd, the convoy reached Dunkirk at 0830. S/L. Maffett and the rear party of the Air Component joined the convoy *en route*. During the day there were no fewer than six attacks by German bombers, and when the s.s. *St. Helier* arrived in the evening it was boarded immediately. All transport had to be left behind and secret documents destroyed.

The *St. Helier* was escorted by one destroyer and two Blenheim fighters as far as Calais, where another destroyer joined the convoy. The ship arrived at Dover at 2130.

The remainder of the squadron, consisting of seven aircraft and a road party, left Lille Ronchin on the afternoon of May 22nd for Clairmarais. The aircraft made the journey in twenty minutes and the road party arrived at 2230 hr. On the 24th, at 0230 hr, Major Fontaine, C.O. of the heavy A.A. defence of the Clairmarais area, visited No. 4 and reported that he had reliable information that an enemy detachment of tanks and machine guns had reached St. Omer, and that small parties had penetrated across the canal eastwards. After a brief conference it was decided to withdraw all troops in a northerly direction. Aircraft were flown-off between 0415 and 0430 hr. The Moths of No. 24 (Communication) Squadron were ordered direct to Hawkinge, and the Lysanders of No. 4, under F/L. Barton, were to proceed to Dunkirk and await orders.

A final local recce. was made and as soon as the road convoy had cleared the vicinity of the airfield, W/C. Charles and P/O. Falconer returned to Clairmarais to destroy the aircraft and petrol left behind. A D.H.89 which was u/s. with a leaking tank was burned, together with some 5,000 gallons of petrol.

On arrival at Dunkirk the base commander ordered immediate evacuation to England. Accordingly, the air party flew on to Hawkinge and the ground party embarked in H.M.S. *Wild Swan* for Dover. The whole squadron eventually foregathered at Ringway on May 25th, having lost all its equipment (and transport) with the exception of eleven Lysanders. During the fateful thirteen days between May 10th and May 23rd, No. 4 made 106 sorties into enemy-held territory and lost

HAWKER HECTOR 1937 — WESTLAND LYSANDER I, II, III 1938

No. 4 Squadron at Farnborough in 1925. Names are as follows:—Back row: F/O. F. C. Marsh (killed in India), F/O. P. K. Campbell, F/O. M. H. Fitzgerald, F/O. R. T. Halliwell, F/O. F. C. Farrington, M.C., F/O. D. Robinson, ——, P/O. M. D. Ommanney, F/O. F. J. O'Doherty (killed in Egypt), P/O. A. B. Kay (killed in Iraq). Seated: F/O. J. A. McDonald, F/O. C. B. Dove, F/O. R. G. Mullette, Lt. Yoo (A.L.O.), F/L. C. L. King, M.C., D.F.C., S/L. J. C. Slessor, M.C., (Commanding Officer), F/L. J. McBain, D.F.C., F/L. C. H. Stillwell, F/O. D. Standley, F/O. H. M. Groves and F/O. F. V. Beamish (killed in Battle of Britain). In front: F/O. Ankerman (Adjutant).

No. 4 (A.C.) Squadron, Bristol Fighters, led by S/L. J. C. Slessor, fly past the saluting base at the Royal Review on Laffan's Plain in 1925.

TYPES FOR TEST 1925

VICKERS VESPA

D.H. 9A. OCEAN

BRISTOL BLOODHOUND

A.W. ATLAS PROTOTYPE

SUBSIDIARY TYPES 1939-41

D.H. MOTH MINOR

D.H. TIGER MOTH

AMERICAN MUSTANG I 1942 | SUPERMARINE SPITFIRE VB/C 1942 | HAWKER TYPHOON 1944 | D.H. MOSQUITO VI & XX 1944

nine pilots and aircrews. D.F.C.s were awarded to F/L. Campbell-Vaullaire, F/L. Barton, P/O. Langley and Capt. Hill. L.A/C.s Allen and Drewitt both received the D.F.M.

Within three days of arrival at Ringway, new equipment began to arrive and rifle-shooting practice started. When a move was made to Linton-on-Ouse on June 7th the transport problem was solved by the use of the Manchester Corporation buses.

Then followed urgent anti-invasion exercises, with coastal patrols added to the intensive army co-operation work which they involved. On occasional invasion scares the squadron was alerted and all personnel recalled from leave. A detachment was sent to Manston for air/sea rescue duties and another Lysander (P/O. Empson and Sgt. Gethin) was lost while on this work. A variety of light aircraft were added to the Lysanders for cross-country work and for teaching army personnel to fly.

As it gradually came to be realised that Hitler's invasion was "off," the squadron settled down to what may be termed an intensive peacetime programme. But there occurred occasional excitements. Two days before Christmas the flying programme was curtailed owing to a red warning. Later, a Whitley returning from an operation—with a full load of bombs—struck a stationary Lysander. Both went up in flames, with bombs exploding every so often. A German bomber joined in the fun, but his aiming was so bad that he missed the airfield completely. The new year, 1940, began with another loss. P/O. Tennent, while ferrying a new Lysander to the squadron, flew into a hillside at Ilkley Moor during a snowstorm and was killed. A lot of work was done in attempting to keep the runways free from snow and one of the most successful methods was found to be spraying with brine from the air.

Training with the Army went on, month in and month out, but on the operational side the A.S.R. Flight at Manston was still busy. A move was made to Clifton, York, and, by the spring of 1942, in the expectation of re-equipment with single-seat aircraft, the pilots were busy with cockpit drill and passing out on a Miles Master and a Curtiss Tomahawk. The first four North American Mustangs arrived from Speke on April 25th, 1942, and another five came three days later. Most of the beloved "Lizzies" were flown away to Elstree and the air gunners posted to Nos. 296 and 297 Squadrons.

By July 2nd S/L. Saunders was leading squadron formations of nine Mustangs and a little later, on Exercise *Punch*, the squadron role was for the first time fighter-reconnaissance. Low-level attacks against enemy establishments started in October, and detachments of flights came south to Gatwick and Detling airfields for this work. It must have been a peculiar life for the pilots at this period, for they were playing with our armies in training, and flying on operations at the same time—trying to remember which was the "enemy" and which was the enemy. A number of operations were made against shipping off the Dutch coast. The commanding officer at the end of 1942 was W/C. G. E. Macdonald, a New Zealander, who was killed while on an operation over Holland. S/L. A. S. Baker has written the following account of one who was undoubtedly a great character:—

"W/C. Macdonald was the most vivid and invigorating person who came to No. 4 Squadron in my time. When Mac first joined us in October, 1942, we were based at York but used to detach flights, for a month at a time, to Gatwick or Detling, to take pictures and, as a sideline, to beat up trains. Mac had little interest in cameras, except camera guns, and in his sudden visits to the detachment he set a splendid example of zeal and skill in finding Germans and killing them. One day he and C. T. P. Stephenson came upon a parade on Poix airfield, which they joyously attacked. The next day, Sunday, the picture papers bore the headline '"We dismissed the parade," says Wing Commander.' In fairness to Mac, I should say that I believe this to have been an invention of the sub-editor.

"Mac was a splendid pilot and shot and an inspiring if impetuous leader. We were all the better for trying to live up to the standards he set us and achieved himself. His passion was guns. He loved using them, harmonizing them, talking about them, and, I have no doubt, dreaming about them. When off this one subject his mind ricochetted from topic to topic with a speed which left his audience speechless. His adjutant, 'Arty' Fischel, was the chief sufferer, and after a session of trying to get a decision on an administrative matter, 'Arty' would be quite distraught.

"One day a new pilot asked Mac how to go about shooting down a Hun. Mac's reply went like this: 'What, shoot down Jerries? Too easy. Go to the French coast, fly up and down slowly at 5,000ft for an hour or two. They'll come up. Shoot a couple down, come home. No trouble. Barman, a flock of beers.' All this was delivered with such a serious air that for a little while it was taken to be serious advice.

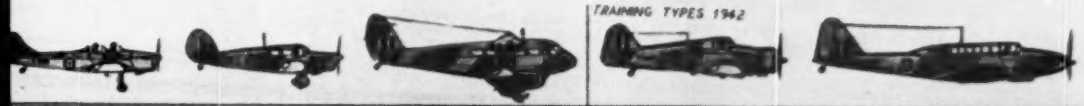
"His death was spectacular and typical. He was on a 'Rhubarb' (low-level fighter-recce.) with Brian Slack (later killed in a Typhoon in Holland) as his No. 2. Mac found some barges on a canal between Zwolle and Deventer. He opened fire at 1,000 yd. Instead of dropping his opening burst half-way, as most of us would have done, his first rounds were on the target. The barges were full of ammunition and as Mac arrived they exploded.

"I was in the Ops. Room that morning, and when we heard that only one of this pair was coming back, we assumed we had lost Brian Slack, for to our minds Mac was indestructible. We had cursed him often when he was with us, but missed him when he was gone. We yarned about him for years."

July, 1943, found the squadron under canvas at Gravesend, and they were told that the Mustangs were to be changed for D.H. Mosquitoes. A month later the unit was back at its peacetime station, Odiham, with one Mk.2 Mosquito from No. 140 Squadron for practice flying—though, of course, operations with the Mustangs continued. At the end of November the squadron was at Sawbridgeworth, and shortly after Christmas

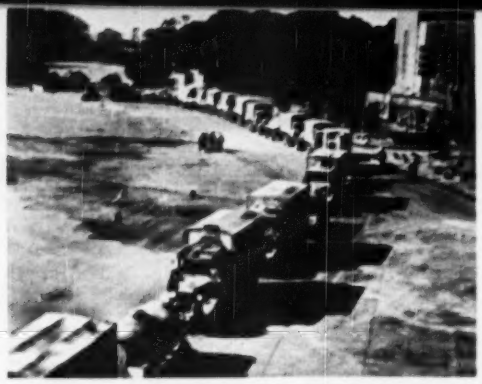
Officers of the squadron in 1927 (the bell, a trophy brought back from Gallipoli in 1923, is now in Odiham parish church). Back row: P/O. E. F. Pippet, P/O. R. N. Smith, P/O. C. J. S. Dickins, P/O. Viscount Acheson, P/O. C. A. H. Evans, P/O. D. P. D. G. Kelly, P/O. V. R. Oates and P/O. D. I. C. Eyres. Front row: P/O. A. H. Allen, F/O. C. G. Hill, F/L. M. C. W. Flint, M.C., S/L. E. J. Kingston-McCloughry, D.S.O., D.F.C., F/L. A. P. C. Hanmy, M.C., F/O. L. I. T. Whitaker, and F/O. G. L. S. Griffith-Jones.

Peel-off over Hampshire: Three Westland Lysanders of No. 4 Squadron perform for *Flight*'s chief photographer in 1939.

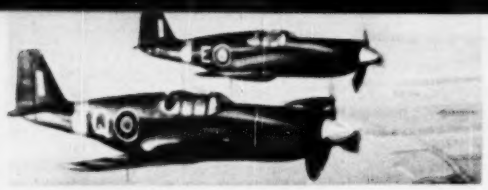


TRAINING TYPES 1942

MILES MAGISTER | SPECIAL DUTIES | D.H. MOSQUITO | SPECIAL DUTIES



No. 4 Squadron transport leaving Odiham for France, Sept. 17, 1939



(Above) Two Mustangs of No. 4 photographed by the oblique camera of a third aircraft. (Left) S/L. C. P. N. Newman, D.F.C., the present commanding officer.

NO. 4 SQUADRON R.A.F. . . .

moved again to Aston Down to concentrate on conversion to new aircraft on a two-flight basis. "A" Flight was to have Spitfire 11s and "B" Flight Mosquito 16s. Two months later, when they returned to Sawbridgeworth, No. 4 put up the finest "Balbo" of their long history. W/C. Hardiman, D.F.C., led in a section of four Spitfires; behind him came six Mosquitoes in two sections line astern (led by F/L. C. T. P. Stephenson, D.F.C.). To port and starboard of the Mosquitoes were two more sections of Spitfires. Finally, four Mustangs in line abreast brought up the rear. All 22 aircraft arrived without incident.

As D-Day came nearer, so the amount of operational flying increased. "B" Flight (Mosquitoes) were having trouble with internal icing-up at height, for de Havillands at that period had not had time to design a heater which would produce dry air. But the squadron got a tip from No. 140, who also had Mosquito 16s, to leave the window slightly open during the climb. This did away with the worst of the trouble.

The squadron was now entirely engaged on high-level photographic reconnaissance and D-Day itself must have been the most disappointing day in the whole career of No. 4—cloud obscured the operational area and only one sortie was flown (F/L. D. E. Mobbs).

When, in June of that fateful year, the weather eventually turned fine, the squadron was putting in over 20 high-level P.R. sorties a day—all in Spitfires, for the Mosquitoes had gone. The aircraft were unarmed and were occasionally chased off their targets by Me 109s and Fw 190s. On July 7th, for instance, F/L. Silk was intercepted at 29,000ft by three Fw 190s, which turned in for an astern quarter attack. Silk climbed to 38,000ft and evaded them. High flying brought its own problems. F/L. R. M. Cowell, while over Fruges, noticed at 31,000ft that his oxygen was diminishing and decided to dive for a safe height. He passed out and had no further knowledge of events until he reached the English coast. He is believed to have spent about an hour over France at heights varying between 10,000ft and 15,000ft, being fired at by flak most of the time. It was found very difficult to "home" him as he had no idea of the course he was steering.

With the memory of Dunkirk still in their minds, everyone in No. 4 was dead keen to get back to the Continent again. On the last day of July, 1944, "A" Flight's commander, F/L. D. A. J. Draper, flew over in company with F/O. A. R. Hutchinson and landed at Plumetot and, comparing conditions with those in England, they felt they had earned their field allowance. By the second week of August the whole squadron was once again in France, this time at Beny-sur-mer.

With the big advance there were quick changes of airfields, first to Fresney Folny, then Fort Rouge, and, by the end of September, to St. Denis Westrem. Here the squadron learnt that it was to be partially equipped with Typhoons, the first four of which arrived on October 1st. The Typhoons were, of course, for low-level work, where the unarmed and unarmoured Spitfire 16s had proved so vulnerable to flak. The last war Christmas was spent at Gilze Rijen, and 20 H.L.P.R. sorties were flown that day. At the time of "the battle of the Bulge" and the crossing of the Rhine, the squadron was mostly employed in support of the 1st Canadian Army, which was engaged in cutting-off the Germans in North Holland.

By the end of February low-level work on the Typhoon finished, and N.W. Germany came under the cameras of the high-level Spitfires. A move was made to Twente/Enschede, where the squadron was when peace came on May 8th. As soon as suitable celebrations had finished the squadron found itself doing a few operations each day, but most of the flying was in practice for victory fly-pasts.

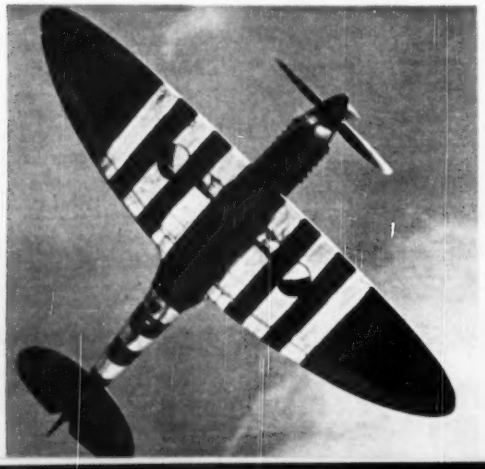
At the end of May there was a move to Celle, and at the end of August, No. 4 Squadron became the H.L.P.R. Flight of No. 2 Squadron, and the squadron aircraft and personnel of No. 605 (County of Warwick) Auxiliary Air Force, under the command of W/C. D. R. Horne, D.F.C., A.F.C., became the new No. 4 Squadron with a changed role. The reason for this reorganization was that the Auxiliary Air Force was stood-down shortly after the close of hostilities, before being re-formed at its home stations in 1946.

Naturally, under these conditions there was an unreal feeling about the squadron, for the mere changing of numbers does not change old loyalties. Added to this there was the story that could be told of any squadron during the demobilization period—a shortage of men and a continual farewell-and-hail as people went and were replaced by new faces.

The present C.O., S/L. C. P. N. Newman, D.F.C. and bar, collected his decorations while night bombing and at the battle of Kohima. He has had a very varied career from the time when he started flying long-nosed Blenheims with No. 139 Squadron at Wyton. His appointments immediately preceding command of No. 4 were a year lecturing at Old Sarum and a year as liaison officer with the Rhine Army.

(Left) All the P.R. Spitfire 11s wore invasion stripes for a short while after D-Day. (Right) 1949: No. 4 Squadron with their Mosquito 6s. In the front, left to right are F/O. Roxberry, Nav. II. Nixey, F/L. Utton, F/O. Dick, Plt. II. Saxby, F/L. Benwell, Nav. I. Corlett, S/L. Newman, F/S. Rowlandson, F/L. Holmes, Nav. II. Goodwin, Plt. II. Hunter, Nav. III. Readings and F/O. de Garis.

Imperial War Museum photograph. "Flight" Photograph.



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VOTE FOR . . .

Now let's be terribly terribly careful. This announcement is *not* political. We bow and raise our hats to *all* politicians —Snoopers, Droopers, Filthy Reactionaries, Little Hitlers, Blimps and even Welsh Gizzards, whether of the Left or Right. We have nothing printed on our bags except the name of a firm of multiple tailors. All we want to say—in a most unpolitical tone of voice — is that in our opinion all these speeches and articles about Productivity don't amount to as much as a day's output of Desoutter Power Tools in increasing production per worker. And in our very, very, very humble opinion that is what most of the people we know are interested in; and not in the production of noise, heat and hot air — at which Desoutter Tools are no good at all. Have we said something we shouldn't?

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AMERICAN NOTEBOOK . . . (Continued from page 254)

ratio, backswept wing, but we have yet to be convinced that this type of wing and power-plant layout is the logical answer to the civil jet operating at a cruising speed around 500 m.p.h. at 40,000ft (M = 0.76). However good a case may be postulated for this type of military bomber designed to operate at transonic Mach Numbers, we firmly believe that the basic design conditions of the civil jet are so completely different that it is a false start to hamstring it to a purely military configuration, such as that seen in the B-47. Indeed, despite all Mr. Beall's powerful forcing shots, this player is not even convinced that the B-47 is the best aerodynamic concept of the high-altitude transonic bomber.

As an article of faith on the affirmative side of the account, we believe that the Northrop ecaudate style of play has more promising speed and range possibilities, military as well as civil. Unfortunately, in killing (or nearly so) the B-49 military version, the U.S.A.A.F. may also have succeeded in stifling the civil jet possibilities of the tailless configuration. The ironic twist about this is that while the rest of the American aircraft industry are still designing paper darts, Northrop is the only designer with a potential civil jet *with transatlantic non-stop range* (due to built-in wing tankage) and of the right commercial size for the 1955-65 time scale. Increased size is the key to the long-range civil jet transport and the answer would seem to be staring our American competitors full in the face.

BATTLE OF THE BARNACLES

The remaining points, Nos. 4-5, simply boil down to fighting "the battle of the barnacles" all over again. Having got rid of external bracing and suchlike embroidery, stowed the landing gear out of sight, and finally tucked the windmills nicely away inside the gas-stove, we are now being persuaded to hoist the whole power unit outside once more and mount it like a rose-bud on a stalk in the breeze. Worse still, in the case of the civil jet, external fuel tanks will add a few more thorns to the bush. We trust our good friend Beall won't mind our backhand drive down the side-lines, but we still think this is retrogressive—looking back, it seems to us, instead of keeping one's eye on the ball.

As we see it, the external appendix (whether engine pod or fuel tank) is really a secondary effect or offshoot of the attenuated wing aerodynamics, because if one starts out with such a concept, then a good case *has* to be made out for what might be called the "odds and pods" design philosophy. Which is the chicken and which the egg is beside the point, but since sustentation in the air literally hangs on the wing (and because the higher one scales the Mach ladder the more important the wing geometry becomes), one feels bound to question the fundamental premise of starting with a thin, high-aspect-ratio wing and then building up the rest of the design around it in the form of external appendices. If the three major design variables for raising the critical M are wing sweep, section "thinness" and low aspect ratio, it seems a waste of time developing something that has all the airmarks of a side-alley off the main highway.

The more we examine the structural and aerodynamic penalties of the thin, high-aspect-ratio wing, the more we sense the ultimate logic of ecaudate and delta plan forms at high Mach Numbers. In other words, why not fill in the base of the inverted vee or arrow plan-form with sustentation instead of space, at the same time providing a nesting place for the power units and the fuel tankage? Naturally the Mach ladder will be climbed in easy stages (dropping the tail appendage on the way), from the moderate aspect ratio of the D.H. Comet, through the ecaudate configuration of the Northrop B-49, to the delta plan-form now appearing over the upper rungs of the ladder in the shape of the Convair XF-92 and Avro 707, both of which are flight research models for larger wings to come. Such, for what it may be worth, is our own view of the road ahead.

We might play back Mr. Beall's fourth and fifth shots by remarking that a good architect does not design an attractive house by placing the plumbing, utilities, gas and electric meters, and such like, on the outside of the structure. Nowadays, they are neatly installed under cover and some ingenuity is displayed in making them accessible in that position. The aircraft designer must perforce follow the same path and a look back at the history of the design art, especially over the the past 20 years, shows this to be the most significant characteristic—cleanliness stands out as the cardinal virtue above all others. With the rapid advance of the jet, we are doubly convinced that the bird has at last escaped from the bird-cage.

None the less, we are aware that although our viewpoint is obviously poles (or pods) apart from Mr. Beall's, these differences in styles of play, and even perhaps in the interpretation of the basic rules, make the game all the more interesting to watch and comment upon. A devotee of tennis, for example, would find Wimbledon a very pedestrian affair if all the competitors had been trained in the same national school and had developed precisely the same technique in stroking the ball. You can standardize the rules, but fortunately you can't standardize the players. Which brings us to the match-point of this particular game.

After paying a sporting tribute to the British for their recent aeronautical accomplishments in the turbine art, Mr. Beall concludes by remarking: "We intend to give them (the British) all the competition we can and I shall continue to hold forth long and loud in the hope that we can obtain funds for continued civil-aircraft development in this country. I am rapidly losing interest in whether we obtain it through subsidy, loan, outright grant, consolidated industry support, or Government contract administered through some appropriate agency." Which, if we might be permitted to say so, seems to cover about every commercial policy except free enterprise.

Minot Trophy Awarded

NUMBER 49 SQUADRON, winners of the recently revived competition for the Laurence Minot bombing trophy, received the trophy from Air Chief Marshal Sir Hugh Lloyd, A.O.C.-in-C. Bomber Command, at a ceremony at the squadron's base, R.A.F. Station, Upwood, Huntingdonshire, on Friday, February 17th. Squadrons stationed at Upwood paraded in a hangar for the presentation, and afterwards the A.O.C.-in-C. took the salute during a march-past. Sir Hugh had previously inspected No. 49 Squadron.

The trophy—a silver eagle—was accepted on behalf of the squadron by its C.O., S/L. R. C. Wilson. Among those present at the ceremony were A.V-M. Hesketh, A.O.C. No. 3 Group, and the Station Commander, G/C. R. C. Wilson (he is not related to the squadron commander). Addressing the parade, the A.O.C.-in-C. declared, "Our job in Bomber Command is to maintain the only immediate striking force we have got in this country at fire-brigade readiness." The fact that Bomber Command was the only immediate striking force meant that everyone on parade that morning carried some of that great responsibility.

In congratulating the squadron Sir Hugh said that congratulations were also due to all who maintained the aircraft.

The Laurence Minot Trophy, presented in memory of an R.F.C. captain killed in air combat, is awarded to the Bomber Command squadron showing the best bombing (visual and blind) and all-round excellence in operational training throughout the year.

Air Chief Marshal Sir Hugh Lloyd with the impressive trophy.

TO THE MIDDLE EAST IN A MORNING

Standard Piston-engined Fighter's 2,200 Miles in 6½ Hours

IN these days, when the achievements of jets steal the headlines, it is a pleasant change to be able to record a spectacular flight by a piston-engined aircraft—in saying which we do not forget some notable long-distance flights by Hawker Furies last year.

The latest Fury achievement stands to the credit of S/L. Neville Duke, the company's assistant chief test pilot, who last Thursday (February 16th) flew from London to Cairo in an elapsed time of 6 hr 35 min 40 sec, an average speed of 334.3 m.p.h. These figures are subject to F.A.I. confirmation. The achievement sets up an initial record, there being no existing official London-Cairo record to beat.

The take-off was from Blackbushe (near Camberley, Surrey) at 7.42 a.m., and, flying a great-circle course of 2,204.6 statute miles, Duke reached Almaza, Cairo, at 2.17 p.m. G.M.T. For purposes of timing the attempt as a place-to-place record R.Ae.C. observers applied a correction which would give a time from the centre of London to the centre of Cairo.

With long-range tanks, the Fury was able to fly non-stop to Malta, where refuelling occupied only 15 min. On arrival, Duke reported unfavourable winds over certain sections of the course. Over France he flew above a thunderstorm.

What makes the flight especially meritorious are the facts that the Fury was a standard, fully equipped aircraft, and that the trip was actually a delivery flight to the Egyptian Government. With a Bristol Centaurus engine, and the five-bladed airscrew which is a distinctive feature of the Fury, the machine has a cruising speed in excess of 400 m.p.h. at 23,000ft.

While, of course, the speed for the record flight is not in itself startling—the latest airliners approach such figures—the true merit of the attempt lies in the fact that the aircraft is a single-seater fighter—a type commonly thought of as having little more than a "local" endurance.

Good wishes before the take-off for S/L. Neville Duke from Mr. T. D. M. Robertson, general manager of Hawker Aircraft, Ltd.

Service Rugby: R.A.F. and Navy Draw

"HEARTS of Oak" and the Air Force March greeted the appearance of the two teams—Navy and Royal Air Force—who met in the first round of this year's Inter-Services Rugby Football competition at Twickenham last Saturday, February 18th. Conditions were perfect, and the game was fought with characteristic good spirit and vigour.

Weak place kicking deprived the R.A.F. of victory; they were pressing much of the time and, in fact, led until the fine last-minute rally by the Navy. Lewis Jones, the Navy's Welsh international full back—playing in the centre on this occasion, and the most dangerous man on the field—opened the score with a dropped goal. Only three minutes later A. A. Smailes took a penalty to even scores 3—3. The R.A.F. immediately replied with a try by H. K. Rees. Within a minute or so of full time, Jones kicked a sure penalty and so the match was drawn, 6 points all.

From the beginning the R.A.F. forwards kept well up on the ball, and made several good rushes, but although the game stayed in the Navy half for much of the time no one looked like scoring for some thirty minutes. Good tackling and prompt sitting on the ball was chiefly responsible for this. The R.A.F. centres and their captain, R. H. G. Weighill, were particularly sound in defence. The outsides tended to run across too much. From the tight, the Navy had a good share of the ball and although both scrum halves were most agile and threw long passes, the stand-offs often fumbled. W. T. H. Hay did much good defensive work, including some useful kicks from tight corners.

Shortly before half time, Jones started to look dangerous and on one occasion cutting through in the centre, for a moment looked like getting clear. Following this, after two penalties had been missed, the R.A.F. forwards raced up the field and actually crossed the line but were unfortunately fetched back for a knock on.

The second half saw one or two good and elusive runs by both G. R. Tucker and B. P. Young, and T. D. Roberts also beat several men on more than one occasion.

The R.A.F. try was very pleasing and was a just reward for the forwards' efforts. A rush up the middle in which three-quarters aided as well, an awkward bounce to upset the Navy full back, and then Rees, aided by Little, had control of the ball. Rees dribbled and touched down near the posts. Smailes' kick failed.

Again the R.A.F. forwards rushed and again managed to cross the line far out. This time, however, touch in goal was flagged before the ball could be firmly touched down.

It was unfortunate that Smailes could not kick the goals offered, however, his touch finding was sound and his calm reliability was a great help to the team. Roberts and Crawford both had spells on the wing as a result of injury, and, in fact, the Navy's great last minute effort came when Jones had moved in to stand-off half. It was, nevertheless, a penalty kick which evened the scores.

To some extent the openness of the game resulted from the lack of spoiling tactics. The wing forwards kept pushing in tight scrums and in the main broke late.

Royal Air Force: F/L. A. A. Smailes (Brize Norton); W/C. R. P. Young (Air Ministry); F/L. R. G. H. Upritchard (Mildenhall); Sgt. T. D. Roberts (St. Athan); A/C. D. H. Phillips (Watnall); Cpl. G. R. Tucker (Ternhill); F/L. W. T. H. Hay (Cranwell); F/O. S. T. H. Wright (Cardington); P/O. B. N. Philips (Benson); F/L. R. V. Stirling (Waddington); A/C. R. G. Syrett (H.Q. Fighter Command); Cpl. E. E. Rossiter (Sutton Coldfield); F/L. H. K. Rees (Manchester University A.S.); S/L. R. H. G. Weighill (Cranwell) (*Captain*); Cdt. S. D. Little (Wittering).

LOSS OF SECOND D.H. 108

IT is with regret that *Flight* has to record the death of the pilot S/L. J. S. R. Muller-Rowland, D.S.O., D.F.C. and bar, when a de Havilland 108 high-speed research aircraft—one of three of the type built—crashed near Bletchley on February 15th.

The aircraft was that which, piloted by Mr. John Derry, established a 100 km closed-circuit record of 605.23 m.p.h. during April last year and which, again flown by Derry, achieved a Mach Number greater than unity in a dive. On its last flight it was operating from the Royal Aircraft Establishment at Farnborough, Hants.

An inquest was opened at Bletchley last Saturday but was adjourned until March 22nd. The coroner told the jury that the machine was believed to be flying at a high speed over Little Brickhill, and that witnesses would say that an explosion was heard. Pieces of the aircraft were scattered over a wide area and many enquiries remain to be made.

CIVIL AVIATION NEWS

FOR THE INNER MAN: Buildings in the terminal area at Schipol have now been completed, and all three floors of the attractive building illustrated are devoted to restaurant and bar facilities. The aircraft is a K.L.M. Convairliner.

STRATOCRUISERS TO MONTREAL

BRITISH OVERSEAS AIRWAY CORPORATION is to introduce Stratocruisers with full sleeper accommodation on the route between this country and Canada; flying via Prestwick, the services will begin April 2nd. The London-Montreal route is at present operated four times weekly in each direction by Constellations. At first there will be two services a week with each type of aircraft, but eventually Stratocruisers only will be used. The Constellations thus released will be put into operation on the central Atlantic service, which, as already announced, is to be re-opened on March 2nd between London, Lisbon, the Azores, Bermuda and the Bahamas.

To date the Corporation has received seven Stratocruisers, which are all in service, training commitments being fulfilled by aircraft taken from normal operations whenever they are available. Delivery of all ten Stratocruisers is expected to be completed by the middle of March.

CROYDON OPERATIONS

THE restrictions hitherto governing use of Croydon Airport by aircraft of over 22,500 lb a.u.w. (imposed by the Ministry of Civil Aviation in February, 1948) have now been removed. The new maximum weight allowance is 25,200 lb, but this concession is subject to certain restrictions in that aircraft in this category may operate from Croydon only by day, using the longest take-off run (1,600yd), and captains must obtain the airport commandant's approval for each movement after his inspection of the load sheet.

The M.C.A. now considers that the grass surface at the airport can withstand such operations provided that they do not use it too frequently, particularly when the surface is bad.

U.S. AIRLINE PROSPECTS

REVIEWING the prospects of traffic on American airlines during 1950 the Air Transport Association considers that passenger-mileage flown by both domestic and overseas operators will moderately exceed the figures for last year. An average annual increase of 5 per cent has been predicted for domestic operations. Mail, express and freight ton-mileage is also expected to be slightly higher in the coming year. Generally, gains in freight ton-mileage (which rose by 35 per cent in 1949) are expected to continue to increase, but at a considerably slower rate. Overall operating profit, however, is expected to approximate to the estimated 1949 figure of $28,000,000.

Most major operators agree that prospects for 1950 should be even better than last year's results but the success of the coming year's traffic is said to depend upon whether Congress and the C.A.B. maintain a suitable policy of regulation in the field of air transport. Some controversy also seems to be taking place as to how great a part the expansion of "air coach" services played in last year's traffic trends.

In 1949 U.S. domestic operators achieved a 15 per cent increase in revenue ton-mileage over the figure for the previous year, while international carriers showed an increase of 16.8 per cent. The most striking increase, however, was that recorded by companies operating feeder lines where revenue ton-mileage increased by almost 59 per cent.

AUSTRALIAN AFFAIRS

THE somewhat stormy atmosphere which has pervaded the conduct of air transport affairs in Australia during recent years is once again becoming evident in the announcement that hearings have begun in the High Court of actions instituted by the Government against A.N.A. and Ansett Airways.

The State has claimed that this money is due for the use of airports and other facilities. The court is also hearing writs issued by A.N.A. challenging certain sections of the Australian National Airlines Act. A.N.A. is seeking an injunction to restrain the State-owned T.A.A. from operating services in New South Wales, Queensland, South Australia and Tasmania. A.N.A. is also questioning the Government's power to refuse to license an air service or to interfere with any existing services. The case has been pending since the passing of the Air Navigation Act in August, 1947, which instituted certain air-route charges. At that time, A.N.A. and Ansett Airways both refused to pay such charges, claiming that they were established as a direct tax inspired by political motives.

In a happier vein, however, is the announcement by the Minister of Civil Aviation, the Hon. Mr. T. W. White, that a new service between Melbourne and the South Island of New Zealand will soon follow as a logical conclusion of the declaration of Essendon as an international airport.

CONVAIR CONVERSION

CONSIDERABLE interest has been displayed by the U.S. airline industry in the decision by General Motors Corporation to construct and carry out extensive trials of what will almost certainly be America's first turboprop-powered transport. The Allison division of General Motors has purchased a Convair 240 in which to install two T-38 turboprops, developed originally for the U.S. Navy. The company announces that on completion of its initial testing the aircraft will be used for demonstration purposes to other manufacturers, the Services and airline operators. The turboprop-Convair is expected to cruise at speeds of almost 500 m.p.h.

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at 30,000ft as compared with the piston-engined Convair's present performance of 290 m.p.h. at 16,000ft.

Pan American officials have hailed the step as "A reasonable approach to the conversion of present airframe designs to greater performance." Although, no doubt, this conversion will produce an aircraft of comparatively large payload capacity capable of achieving very fast block speeds, it is questionable whether the installation of turboprops will result in very impressive range figures. The present piston-engined version has an approximate still-air range with maximum payload (40 passengers) of 700 miles, cruising at 60 per cent of rated power; this is achieved by a fuel allowance at maximum payload of just over 500 gallons.

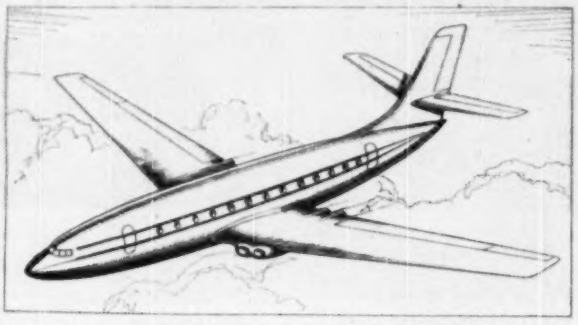
The Convair's range has already been the subject of some adverse criticism and it may be that the installation of the T-38 turboprops, even in a form adapted for commercial use, will have the effect of rendering the aircraft suitable only for operations over the shorter stage-lengths at its normally high passenger-capacity.

THE CHAMPAGNE

DESIGN studies for the S.O. 5100, a French conception of a four-jet civil transport, have advanced rapidly. The Champagne—to quote the name by which this S.N.C.A.S.O. project is now popularly known—is firing the imagination of most French aviation writers, many of whom are calling for an immediate official decision on its future. The cost of development is envisaged as being in the region of four to five thousand million francs for two prototypes, and, if construction is begun immediately, it is estimated that flight trials might be possible in 1952. French-built Rolls-Royce Nenes are at present considered to be the most likely means of propulsion.

The French see in the Champagne, if opportunities are seized immediately, a chance of regaining their position as a major aeronautical power. Many informed authorities seem to consider that the very future of the French aircraft industry depends on a successful outcome.

As can be seen from the accompanying drawing, the makers' layout of the Champagne shows a distinct similarity to the general configuration of the Comet, and it may be assumed that the design team will closely study all technical information made available concerning the British aircraft.



The French four jet project referred to in the adjacent paragraph.

CANADIAN SETTLEMENT

TRANS-CANADA AIR LINES will shortly begin operations on the highly controversial Montreal-New York route, which for some time has been the subject of a dispute between Colonial Airlines and the Canadia Air Transport Board. The American company recently withdrew its U.S. Supreme Court action, by which it was hoping to prevent the C.A.B. from granting a parallel route to T.C.A. in accordance with the terms of last year's U.S.-Canada air agreement. Explaining its change of policy, Colonial Airlines state: "It would not be in the public interest to challenge the powers of the President to make executive agreements with foreign nations."

METEOROLOGICAL CONFERENCE

THE third session of I.C.A.O.'s Meteorological Division, now being held in Paris, is attempting to co-ordinate current methods of seeking knowledge of upper-air weather. Most reports are obtained from radio-sonde balloons and although the existing networks in Western Europe and North America are reasonably complete, some parts of the world have only two or three stations for an entire continent. Finance is said to be one of the major difficulties: the cost of operating a radio-sonde station is as much as £10,000 per year.

The meeting will also investigate available knowledge of "sharp-edge" gusts and other phenomena which are becoming of great importance with the advent of jet transports. These investigations are being undertaken particularly with the object of improving accuracy in predicting the conditions under which gusts of this kind can be expected at various levels.

Other items on the agenda include the consolidation of specifications for meteorological services necessary for international air navigation; it is intended eventually to produce Standards and Recommended Practices on this subject. The Division will also attempt to co-ordinate meteorological broadcast systems to ensure that the fullest possible value is obtained from the limited number of radio channels at present available for this purpose. It will review, too, the consequences of the gradual replacement of W/T. by R/T. in ground-air communication for the exchange of meteorological messages.

Other subjects under study include an attempt to classify various types of aircraft icing and an investigation into the possibilities of reporting cloud-height and visibility conditions which exist in the approaches to airports rather than (as with the present procedure) at the airports themselves.

AIR FRANCE DEVELOPMENT

ON February 8th—its 31st anniversary—Air France announced that during 1949 the number of passenger-kilometres flown by its aircraft had passed the one thousand million mark for the first time since the company's foundation. An idea of the upward trend in traffic development can be obtained from the figures for the two previous years; in 1947 509,500,000 passenger-kilometres were flown, in 1948 the figure reached 831,500,000.

The route mileage of the company's world network now extends over 112,000 miles. There are at present 93 scheduled lines linking 145 different centres in 66 countries or dependent territories. With the inauguration on October 1st of the Noumea (New Caledonia) service, Australia, previously the only large country outside the network, now comes within it.

Although in route-mileage the company is no longer foremost among the world's operators (due to the amalgamation of the two long-distance British Corporations), Air France still claims to be the first airline in the world from the point of view of age; its first commercial flight was made on February 8th, 1919, with 15 passengers, from Paris to London.

ASSOCIATE AGREEMENTS

AFTER consideration by the Air Transport Advisory Council, provisional approval has been given for a further eight scheduled air services to be operated under associate agreements with B.E.A. The new agreements involve the Belfast-Yeadon and Belfast-Newcastle routes, the Isle of Man services from Blackpool, Birmingham and Manchester and, additionally, the routes from Birmingham to Ostend, Shoreham to Deauville and Portsmouth to Ryde.

In all, the Council has now given its provisional approval for 48 scheduled services or inclusive tours by charter companies; 17 agreements approved last year are still in operation and 32 further applications remain to be considered. Of a total of 140 services for which applications were received this year, 100 have been rejected, the 48 services so far approved being provided by only 18 companies.

AER LINGUS SUBSIDIES

THE Irish Dail last week passed the second reading of an Air Navigation and Transport Bill which will permit a continuation of State subsidies for the maintenance of air-transport services. Mr. L. Cosgrave, Parliamentary Secretary to the Ministry for Industry and Commerce, announced that between August, 1946, and March, 1948, these subsidies had amounted to £750,000. It was now proposed, he said, to provide for annual subsidies as required for the next five years.

In the year ended March, 1949, Aer Lingus lost £162,000; the estimated loss for the current year was £125,000, though it was not expected that this figure would actually be reached. In consequence of the agreement with Great Britain, the whole of the losses did not fall exclusively on the Irish Exchequer.

With regard to the future of Shannon Airport, Mr. Cosgrave

said that discussions with American authorities were now in progress to review the terms of the 1945 agreement. Economic considerations still favoured the use of Shannon as an Atlantic base; the airport at Dublin was now overcrowded and was thus unsuitable as a transatlantic terminal. The prospect of enlarging Dublin Airport was also being considered.

Writing in the current issue of the company's journal, Mr. J. F. Dempsey, general manager, states that, at December 31st, the £90,000 profit which was realized during the first six months of the present financial year had dwindled to only £27,000. The largest item of expenditure is that of salaries, which amounts to 40 per cent of the total. Although the suggestion that a reduction in fares will induce more people to travel is accepted as being essentially correct, the application of this principle in 1949, when fares were reduced by 15 per cent, is said to have resulted in a net profit increase of only £5,000. In Mr. Dempsey's view, the most effective method of offsetting reduced passenger revenue in the winter is by the development of cargo traffic. In 1949 the cargo figures increased by 53 per cent over those for 1948.

The opinion is also expressed that the loss for the full year may be considerably less than that for the year 1948-49. Although the recent demonstration of new aircraft at Dublin airport caused considerable speculation, Mr. Dempsey feels that Aer Lingus is adopting a go-slow policy towards the vital question of fleet replacement.

BREVITIES

HIS MAJESTY THE KING has been pleased to give restricted permission to Mr. Dennis Handover, chairman of S.A.S., to wear the insignia of a Chevalier First Class of the Order of Vasa, recently conferred upon him by the King of Sweden.

* * *

The Australian Minister for Civil Aviation has announced that Essendon Airport at Melbourne will shortly be declared an international airport. This will permit overseas passengers to fly direct to Melbourne, thus eliminating the delay and inconvenience of changing aircraft at Sydney.

* * *

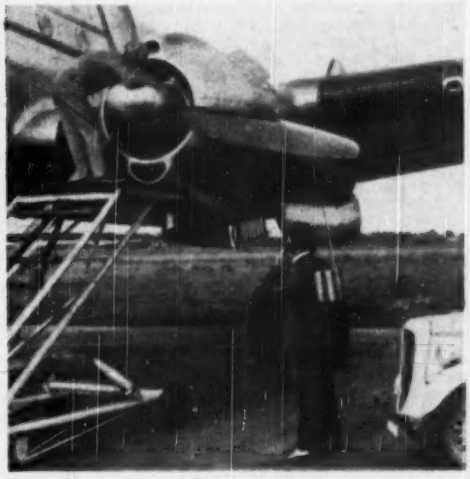
Pan American World Airways flew 37,299,083 revenue ton-miles in 1949, an increase of nearly 3½ million over the figure for 1948. Freight amounted to 47,704,000 lb; operations on all of the company's three divisions showed an overall increase of 19 per cent in cargo tonnage.

* * *

The Bristol Brabazon made its longest flight to date on February 13th when, piloted by Mr. A. J. Pegg, Bristol's chief test pilot, it was airborne for nearly five hours and reached its highest recorded altitude of 12,000ft. The normal test crew of 10 was augmented to 18 by the addition of reserve crew members under training and extra flight observers to assist in the numerous tests which were undertaken.

* * *

The first six Beechcraft Model B-35s scheduled for overseas delivery will go to Belgium, Paraguay, Switzerland, Nicaragua, Iran and Chile. The aircraft, it is reported, has been so well received that domestic and foreign orders have necessitated an accelerated rate of production. One of the aircraft for Belgium will be displayed at the Brussels Show before being put into service by Intair, Ltd.



WALKIE-TALKIE : A progress report is made on an aircraft inspection through the medium of a Marconi V.H.F. mobile R/T set during a recent demonstration at London Airport.

Mr. J. R. Neil, A.R.Ae.S., has been appointed commandant of Renfrew airport. Previously an M.C.A. operations officer, Mr. Neil is also a qualified service pilot.

* * *

Panagra reports an increase of approximately 2,000,000 revenue passenger-miles over the figure for the previous year; further increases of over 100,000 are also recorded for revenue express and freight ton-miles. Last year nearly 94,000 revenue passengers were carried and 2,510 tons of freight flown between the U.S. and countries in South America.

* * *

As part of a five weeks' visit under the auspices of the British Council, Mr. Riad Ali Ahmed, Director of Civil Aviation to the Lebanese Government, is to study the administration and control of airports and the training of civilian pilots and administrative officers. His tour will include studies at Croydon, London and Prestwick.

* * *

In the four weeks from January 2nd to January 29th, activity at the three French airports of Toussus-le-Noble, le Bourget and Orly included 5,689, 2,222 and 1,444 aircraft movements respectively. At Orly some 16,415 passengers were handled during the month and 20,390 passed through le Bourget.

* * *

American Overseas Airlines recently announced an agreement with U.S. domestic companies whereby British transit travellers to the United States will not require a transit visa. This arrangement is designed to facilitate particularly the passage of British subjects to Australia, New Zealand and other Commonwealth countries.

* * *

It is learned in Washington that the C.A.B. is expected to reach a decision in the near future which will enable the Spanish airline Iberia Mercantil to use Miami Airport on its Caribbean service. Plans for a direct Madrid-New York service have also been submitted, but development of this route is not expected for some time.

* * *

To meet the demand of American business-men for a direct service to the British zone of Germany, American Overseas Airlines will extend its transatlantic services to Hamburg with effect from March 5th. Passengers for that destination will be transferred at Shannon to Constellations, and will now reach the British zone of Germany only 15 hours after leaving New York. The new service is to be operated twice weekly, leaving New York on Sundays and Tuesdays and Hamburg on Tuesdays and Saturdays.

* * *

A second application from a U.S. airline to operate charter flights carrying Catholic pilgrims to Rome this summer has been rejected by the C.A.B. Federated Airlines, Inc., had requested permission for 395 return flights between New York and Rome, but were told that their proposed service did not satisfy the Board's requirements for its programme of low-cost mass air-travel. C.A.B. added that the service would involve "a serious disruption of the certificated air service pattern and would result in the substantial diversion of the regular services."

* * *

In presenting his half-yearly report, the Director General of Civil Aviation for India states that Indian air transport companies achieved a record of nearly 7,407,000 aircraft-miles as compared with totals of 5,916,320 for the corresponding period of 1948 and 6,732,410 in the latter half of that year. Internal and international scheduled operators covered an unduplicated route mileage of 20,661 miles, on which 170 aircraft were used. The number of passengers carried amounted to 190,600; the

CIVIL AVIATION NEWS . . .

average load factor, however, decreased from 73.2 to 66.4 per cent. Airfields under the control of the D.G.C.A. now total 47.

* * *

B.O.A.C. service frequencies between London, Glasgow and Montreal are being increased this month to four return flights weekly. This service, on which Constellations are used, will ultimately have a daily frequency.

* * * *

Swissair traffic statistics for 1949 show considerable improvement over the figures for the previous year. Some 5,350,000 aircraft miles were flown and over 150,000 passengers carried. Freight and mail together amounted to over 2,300,000 kg. Four Convairs were added to the Company's fleet during the year.

* * *

The Piper Aircraft Corporation announces two models of the Cub and three versions of the Pacer (a development of the Clipper) in its range for 1950. Larger and roomier tandem-seating is a feature of the new Cubs, while the three versions of the four-seat Pacer have increased fuel capacity, a re-designed landing gear and a larger tailplane area. The aircraft vary in price from $2,759 to $3,795.

The Argentine Ministry of Transport has purchased five new Convairs for use on the passenger services of Aerolineas Argentinas. It is also announced that, with effect from March 1st, the flying-boat operations of the former Alfa Company will be incorporated within the structure of Aeroposta. Contrary to recent rumours, however, the inauguration of a weekly New York service is not contemplated for the immediate future.

* * *

At Hemel Hempstead Magistrate's Court recently, a pilot, described as a free-lance, was fined £50 and £21 10s costs for failing to satisfy himself that a Rapide aircraft of which he was captain contained sufficient fuel for a flight. The journey was from Bovingdon to Croydon, and the lack of fuel necessitated a forced landing on some playing-fields near Sutton, Surrey.

* * *

At a recent meeting of the Boards of the three component companies of S.A.S., held in Oslo, it was decided that A.B.A., D.D.L. and D.N.L. will continue to operate in conjunction with one another, but that large-scale reorganization is to be undertaken in order to increase efficiency and reduce costs. One of the major changes recommended is that S.A.S. should be operated as a single enterprise under the management of one Board and one administrative manager.

FROM the CLUBS

Something to go on with: £30,000 for A.T.C. Flying Training

MARKING the first positive results in a long struggle by the Association of British Aero Clubs for State recognition of the potential value of private flying clubs to the nation came the Air Ministry announcement last week of a £30,000 allocation for flying training of selected A.T.C. cadets up to Private Pilots' Licence standard.

By its work in co-ordinating the efforts of individual clubs and in establishing a standardized training syllabus and further standards of servicing and equipment for its members, the A.B.A.C. has effectively removed most of the grounds for the criticism which was levelled at a similar pre-war plan—the Civil Air Guard. Indeed, the new system of flying scholarships represents a considerable advance on the somewhat unsuccessful C.A.G. scheme; by permitting, as it does, increased utilization of aircraft, it should prove of great value to the club movement in general.

Further details of the selection and methods of allocation of the successful cadets to their training clubs will be announced later, but it is hoped that the sum of £30,000 will provide for the training of at least 250 pupils. The Air League of the British Empire last year inaugurated a somewhat similar but somewhat more limited flying scholarship plan and, in order to co-ordinate administration of the two schemes, discussions are being held between the Air Ministry, the Air League and the A.B.A.C.

Although £30,000 is by no means a large sum, it nevertheless indicates the fact that concrete progress has been made in overcoming official indifference to the post-war plight of the clubs. Had the R.A.F. not been desperately short of money for its own priority needs, some such help might have been forthcoming earlier. The Service, perhaps, has recognized the position as being desperate and this contribution has been made to ensure survival of the flying-club movement. It is a small beginning, but one that may be indicative of better things to come. Further comment appears on p. 245.

DURING January the Cambridge Aero Club completed a total of 164 hours' flying, a considerable portion of which has been flown by three candidates for commercial licences. One pilot who had almost completed his flying training took the club's Autocrat to France, Spain and Italy, and, in weather conditions which were far from ideal, gained some useful flying experience. One Instructors' Certificate has been issued and two further Private Pilots' Licences obtained during the month. Three first solo flights were also recorded.

* * *

BY agreement with the Aero Club of France and the F.A.I., an international rally is to be organized on July 14th, 15th and 16th by Les Ailes Cognaçaises—the Cognac club. The event will be open to all private aircraft and cash prizes totalling over half a million francs, in addition to numerous awards in kind, are offered. More detailed information is expected in due course.

* * *

FOLLOWING the suspension of the service whereby reminders are sent by the M.C.A. to holders of Students' and Private Pilots' Licences which have become due for renewal, the Royal Aero Club has now undertaken a similar service. In future, every licence issued by the M.C.A. will be accompanied by a postcard addressed to the Air Touring Department of the Royal Aero Club which, on receipt of the completed postcard, will notify the holder of impending expiry.

Holders of current licences who wish to make use of this service are requested to write to the R.Ae.C. Air Touring Department, Londonderry House, 19, Park Lane, London, W.1, giving their name, address, licence number and the date of expiry. Similarly, the R.Ae.C. will in future notify all owners of private aircraft of C. of A. expiry.

THE Aero Club of India and the Bengal Flying Club are jointly organizing the first Indian National Air Races, to be held at Barrackpore airfield this week-end. A three-day programme has been planned, the rally being opened on Friday (February 24th) by the Governor of West Bengal, and visited on Sunday by the Hon. Mr. R. A. Kidwai, the Indian Government Minister of Communications.

* * *

COWES AERO CLUB reports a brisk demand for the low "out of season" rates for flying instruction and hire which were recently announced. These rates range from as little as £2 per hour dual to £1 10s solo. Autocrats are available at dual and solo rates of £2 10s and £1 15s respectively, or at a daily hire charge of £7 7s including a full tank of petrol. The club reports considerable activity during recent week-ends—more, in fact, than has ever been previously recorded at this period of the year. The Cowes Display for this season will be held on August 6th.

* * *

SOUTHEND MUNICIPAL FLYING SCHOOL reports that although, in December, bad weather kept flying hours to a rather low figure (80), January showed a distinct improvement and a total of 130 hours was recorded; it included two first solo flights. The club recently had occasion to make good use of the radio installation at the airport when, in spite of rapidly deteriorating visibility, it was possible to continue instruction on the Austers in the clear weather above the fog, the aircraft being brought in by QDM let-down procedure. A private owner, and the club's own Proctor, were also diverted by radio to Southend and Manston respectively.

The Link trainer has been utilized constantly in recent months and several pilots about to take their Instrument Rating tests have obtained some useful practice. Hours logged on the Link were 38 in December and 27 in January.

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CORRESPONDENCE

The Editor of "Flight" does not hold himself responsible for the views expressed by correspondents in these columns. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

Yesterday's Giants

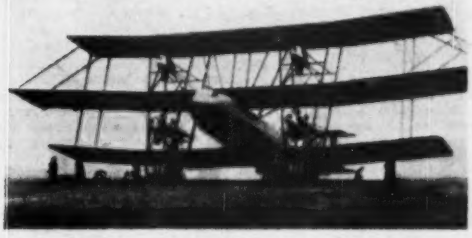
I HAVE read with interest and agree with Mr. Geoffrey Dorman's article, "Size is Relative," in your issue of February 9th. I so well remember the old 14-passenger 75-ft span 880 h.p. Handley Page W.10s of Imperial Airways being called "Giant airliners."

For the sake of history I should like to take up Mr. Dorman's point that the first world war prevented further development of the Russian *Ilia Mourometz* type aircraft. In fact, 73 of these aircraft were built during the period 1914-17. They all had the designation IM, followed by a number. Of the total, 72 of these IM aircraft had four motors and most carried a crew of 5 and were armed with 5 machine guns. One IM dropped a 1,000-lb bomb, some had 600-lb of armour and the 1916 type had tail gun-positions.

Between February, 1915, and October, 1917, sixteen of these aircraft made 422 raids, dropped over 2,000 bombs, took 7,000 photographs and destroyed neatly 40 enemy aircraft. During three years of flying only two aircraft, the IM 1A and the IM 14, were lost by accidents.

JOHN STROUD.

London, W.14.



The Tarrant Tabor triplane of 1919, subject of the letter below.

IN the article "Size is Relative," in the February 9th issue of *Flight*, there is a mis-statement relative to the Tarrant triplane. The pilot was Capt. Dunn—not Sgt. Plt. Dunn; and the aircraft did not catch fire after the crash.

I myself was on board as engineer.

F. N. EDNEY.

Farnborough, Hants.

Thunderstorm-flying

I SHARE every flying-boat pilot's regard for Charles Gardiner, who chose to become one of us during the war, but I believe his solution to the problem of thunderstorms in the tropics at night (page 203, *Flight*, February 9th) is one peculiar to boat pilots.

We had an instinctive tendency to "tuck to under" any dirty weather, because our early operations against submarines depended upon visual spotting, before the advent of A.S.V., and we abandoned our operations when it was impossible to fit in between the cloud and the sea. A thousand hours of this sort of thing gets into a man's soul; he becomes a two-dimensional flier, using only surface winds which could be "read" direct from the sea, and assuming R.A.S. to be T.A.S. Working mostly from sea bases obviated any tiresome altimeter corrections for return, and one had only to reset the instrument occasionally from an estimated height above the sea. In such circumstances a fatal approach to instrument flying evolved.

Under thunderstorms by day one still felt moderately happy, in spite of the heavy precipitation, because one could still retain sight of the sea. It was either beaten comfortingly flat, or else one could anticipate from its appearance any major change of motion, neither sensation being so unpleasant as flying blind and waiting to hit the "chimney" of the cloud. I think it is dangerous to try to apply this method at night, quite apart from the risk of waterspouts and the fact that it is an unsuitable height for airliners, anyway. *One is forced to watch the altimeter and to chase it*, the worst possible things when running into low pressure; and surely it is also doubtful whether an altimeter can read true to its own datum in such circumstances? I am speaking of the squalls mentioned by Mr. Gardiner, because I returned to one of these, in command, after a Beaufighter tour in Burma, and on the nightly service from Ceylon to Singapore this was the current practice of pilots. A.S.V. was then helping us to avoid the heaviest areas of precipitation.

Flying under the cloud by day with a sea horizon is flying "attitude." The same technique should be adopted by night on the gyro horizon, only one should start further from the sea to allow for the lag in corrections. As downdraughts cannot enter the sea there should be no fear of immersion if the attitude is preserved. Incidentally, it seems as though the waterspout hazard can appear anywhere in a violent storm. On the afternoon before Mr. Gardiner's letter appeared, I was ordered to descend to V.F.R. in a homeward-bound Viking over the Channel. I encountered a violent thunderstorm and hail, and when attempting to get underneath at 800ft saw two rotating patterns of spindrift about half a mile apart and each about fifty yards in diameter. My seafaring experience told me these were embryo spouts, but I had never personally heard of any in the Channel before.

Though nothing learnt from the sea is wasted (meteorologically speaking), I believe the landplane people have taught us more since the war; they are not psychologically locked in a rigid inability to rise above 1,000ft. My own mind is open.

R. C. O. LOVELOCK.

Fleet, Hants.

Noise and the Public

I WRITE in support of Mr. A. Jackson's comment (Correspondence, *Flight*, February 9th) on the reported remarks of Councillor F. Clapham of Wolverhampton, who cites the flying training in the vicinity of that city as an "ever-present danger and an intolerable nuisance." In particular, I thoroughly endorse the remarks with which your correspondent concludes his letter.

I recall that in 1947 a petition was hawked round Denham village, Bucks, for signatures, to protest against the noise caused by light aircraft carrying out *ab initio* training in the local circuit. In this case the efforts of the petitioner were misspent and entirely misguided, for the real source of discomfort to the villagers lay in the fact that they were situated directly beneath the final approach of the Northolt QDM. I should have thought that the racket of a Skymaster "on finals" would have practically immunized anyone against the modest note of a Tiger Moth at circuit height. Is there, however, in the light of past experience, any case for those who blatantly expose their antagonism to the light aircraft movement engaged in preparing a reserve of Service and civil pilots?

R. H. H. SLADE.

St. Agnes, Cornwall

FORTHCOMING EVENTS

Feb.	23.	R.Ae.S. (Isle of Wight): "Propeller Turbines for Airliners," by E. J. Richards, M.A., B.Sc., A.F.R.Ae.S.
Feb.	27.	R.Ae.S. (Bristol): "Aircraft in Future Warfare," by Air Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C.
March	4.	British Interplanetary Society: "Testing of Rocket Motors," by Dipl. Ing. H. F. Zumpe.
March	7.	R.Ae.S. Graduates: "Gas-turbine Installation," by J. C. Wallin, B.Sc., A.F.R.Ae.S.
March	8.	R.Ae.C.: Ball, Londonderry House.
March	9.	R.Ae.S. (Isle of Wight): "High-speed Research," by J. D. Derry.
March	10.	R.Ae.S. (Portsmouth): "Design Problems of Large Flying Boats," by H. Knowler, F.R.Ae.S., A.M.I.C.E.
March	13.	R.Ae.C.: Film Show, Londonderry House.
March	14	Aero Golfing Society: Match v. R.A.F.G.S., followed by Flight Dinner.
March	14.	R.Ae.S. (Belfast): "Problems of High-speed Flight," by H. Davies, M.Sc., F.R.Ae.S.
March	15.	R.Ae.S. (Coventry): "Flying Boats," by H. Knowler, F.R.Ae.S., A.M.I.C.E.
March	16.	R.Ae.S.: "Air Survey," by Prof. C. A. Hars, M.Sc.(Eng.), Ph.D., M.Inst.C.E., F.R.I.C.S.
March	17.	Institute of Transport: Annual Dinner.
March	21.	R.Ae.S. Section Lecture: "Boundary Layer at High Speeds," by A. D. Young, M.A., F.R.Ae.S.
March	22.	R.Ae.S. (Manchester): "Accident Investigation," by A. Cdre. Vernon Brown, C.B., O.B.E., M.A., F.R.Ae.S.
March	23.	R.Ae.S. (Glasgow): "Fuel Consumption," by J. Leggett.
March	23.	R.Ae.S. (Isle of Wight): "Gliding," by P. A. Wills, C.B.E.
March	24.	College of Aeronautics Senior Common Room Society: Annual Dinner.
March	25.	Helicopter Association: "Performance Testing of Helicopters," by F. O'Hara, M.A.
March	27	R.Ae.S. (Bristol): "Gliding," by A. H. Yates, B.Sc., A.F.R.Ae.S.

"Flight" photograph.

GLOUCESTER VAMPIRES: Recent acquisitions of No. 501 (County of Gloucester) Squadron, R.Aux.A.F., viewed from a Meteor 7.

Tirpitz Souvenir

A SOUVENIR from the German battleship *Tirpitz*, sunk by R.A.F. bombers in Tromsoe fjord on November 12th, 1944, was presented to R.A.F. Bomber Command on Thursday, February 16th, by Lieutenant-General Bjarne Oen, Commander-in-Chief, Royal Norwegian Air Force. The trophy, received by the Air Officer Commanding-in-Chief, Air Marshal Sir Hugh P. Lloyd, K.B.E., C.B., M.C., D.F.C., is part of one of the engine-room bulkheads of the *Tirpitz*, on which one of the engineers had painted the ship, accompanied by a submarine, ploughing through a rough sea. Above are the words *Gegen Engeland* (against England). It was recovered from the *Tirpitz* by the Norwegian company engaged on salvaging the ship, which expressed the wish that it should be presented to the R.A.F. The *Tirpitz* was sunk by a force of 32 Lancasters, led by W/C. J. B. Tait, D.S.O., D.F.C. They attacked in daylight, using 12,000 lb "Tallboy" bombs, which scored two direct hits and one near miss, causing the *Tirpitz* to heel over and sink.

"Med." A.S.R.

A SUCCESSFUL air-sea rescue operation was recently performed by the R.A.F. in the Mediterranean, when two lighters loading an American ship off Larnaca, Cyprus, broke adrift in heavy seas at about midnight. A Beaufighter from Nicosia took off at first light in a high wind to search local waters for the craft, which had eight men on board. After a short time the pilot spotted one of the lighters, which was already being towed to port by an R.A.F. rescue launch despatched a few hours earlier. Later a Lancaster from the Central Air Navigation School, at Shawbury, Shropshire, engaged on a training flight, found the second lighter, abandoned.

Anglo-Iraq Co-operation

A SQUADRON of the Royal Iraqi Air Force—No. 1, equipped with Hawker Fury fighters—has completed a month's operational training at R.A.F. Station Habbaniya, in very close co-operation with units of the Middle East Air Force.

After a week spent in getting to know the routine of the station and obtaining an insight into R.A.F. training methods, the Iraqi pilots had three weeks of intensive flying with two British units—the resident squadron of Bristol Brigands and a squadron of D.H. Vampires from the Canal Zone of Egypt. The programme included fighter affiliation exercises, and practice in the fighter-bomber and fighter-reconnaissance roles, as well as navigation and armament training. Throughout their stay the Iraqi officers and men lived in R.A.F. messes and took part wholeheartedly in the various station activities.

A joint flying display, in the presence of H.R.H. the Regent of Iraq and the Air Officer Commanding, Iraq, Air Vice-Marshall J. N. Boothman, was the climax of the visit. The flying was of a very high standard, one of the highlights being aerobatics by a flight of Vampires from Cyprus. A formation fly-past by the R.A.F. Vampires and the Iraqi Furies formed the finale. A luncheon after the display was attended by the British Ambassador and members of Iraq Government and Service departments. The Officer Commanding the Iraqi squadron presented the R.A.F. squadrons with gifts of Amara silverware, inscribed to commemorate the visit.

Australian Naval Flying

THE Australian Minister for the Navy, the Hon. J. Francis, has announced that the Government intended to expand the Naval Air Arm as the major naval defence unit. In accordance with this plan the aircraft carrier *Sydney* is to be sent to U.K. to permit officers and ratings to be trained in the latest tactics of Naval Aviation arm. In addition to carriers, of which apparently more will be ordered, the concentration will be on a compact force of cruisers, destroyers and submarines.

Benevolent Fund Change

AIR MARSHAL SIR PATRICK PLAYFAIR, K.B.E., C.B., C.V.O., M.C., has been appointed Chairman of the Scottish Branch of the R.A.F. Benevolent Fund in succession to G/C. the Earl of Selkirk, O.B.E., A.F.C., who has resigned. Air Marshal Playfair, who lives in Edinburgh, commanded the Advanced Air Striking Force in France in 1939-40 and was afterwards appointed Air Officer Commanding-in-Chief in India.

Appointments

THE Air Ministry announces the appointment of Air Vice-Marshal Geoffrey Roger Cole Spencer, C.B.E., as Air Officer Commanding, No. 19 Group, Coastal Command, with effect from February 8.

Air Vice-Marshal Spencer was formerly Air Officer Commanding, Air Headquarters, Gibraltar, where he has been succeeded by Group Captain Walter Graemes Cheshire, C.B.E., who has been given the acting rank of air commodore.

Following the transfer of No. 612 (County of Aberdeen) Squadron from Reserve Command to Fighter Command, new appointments have been made at R.A.F. Station Dyce. S/L. Donald Williams, D.F.C., who was a member of the crew of the Lancaster *Aries*, which made pioneer navigation trips into the Arctic, takes over command at Dyce, which is within No. 66 (Scottish Reserve) Group.

His predecessor, S/L. Paul Webb, who for the past two years has been carrying out the dual role of officer commanding the station and No. 612 Squadron, is now in command of the Auxiliary Squadron, which becomes a separate unit belonging to No. 12 Group, Fighter Command.

The Air Ministry also announces the appointment of W/C. John Leighton Beck, D.F.C. and bar as Commanding Officer of No. 3609 (West Riding) Fighter Control Unit, Royal Auxiliary Air Force, Yeadon, Leeds.

R.O.C. Silver Jubilee

THE Royal Observer Corps celebrates its Silver Jubilee in April. In 1925, when it was formed, its members were Special Constables detailed to undertake aircraft observation under the opera-

tional control of the War Office, which had taken over the reporting organization brought into action by the Admiralty and the Police in World War I. Since 1929 the Corps has been under the operational control of the Air Ministry, which in September, 1939, also took over its administration from the Home Office.

During World War II the membership of the Corps rose to 32,000. This included 4,300 women, for whom recruiting was opened in June, 1941, and this mixed force manned the entire home defence observation network of 1,420 posts and 40 centre operations rooms. Half the personnel of the operations rooms were usually women, with men on duty at the outlying posts. The Corps stood down for a while in May, 1945, but was soon in being again. In January, 1947, it reformed, and former members rejoined for spare-time service from all parts of the country. Soon afterwards, recruiting was opened to men and women with no previous service in the Corps. Its present strength is about 13,000 men and 2,000 women. Working in close contact with R.Aux.A.F. Fighter Control Units and R.A.F. and R.Aux.A.F. Fighter Squadrons, under the operational control of Fighter Command, the Corps is a vital part of the defence systems evolved by R.A.F. Fighter Command and the Army Anti-Aircraft Command.

The man who worked out the system and organization upon which the R.O.C. was built was Major General E. B. Ashmore, C.B., C.M.G., M.V.O., who was given this duty in 1917. The first Commandant was Air Commodore E. A. D. Masterman, C.B., C.M.G., A.F.C., who took over on March 1st, 1929.

In January 195 men and 40 women applied to join the Royal Observer Corps. The applications in each of the five Royal Observer Corps areas were:—Southern area, 30 men, 15 women; Midland area, 43 men, 8 women; Western area, 43 men, 8 women; North Western area, 14 men 6 women; Scottish area, 65 men, 12 women. All areas still need volunteers. The lower age limit for new volunteers is 16 and the upper age limits are 45 for service at centres and 55 for service at posts.

Far East Appointment

AIR COMMODORE A. BRISCOE, M.B., B.Ch., K.H.P., who has since December, 1948, been Principal Medical Officer, Maintenance Command, has taken up a similar appointment at Headquarters, Far East Air Force. Most of his service during the war was overseas—as P.M.O. at Air Headquarters, India, in 1941-42 and with the South African Air Force in 1942-44. He was subsequently Deputy P.M.O., Transport Command, and P.M.O., Flying Training Command. He has relieved A. Cdre. C. T. O'Neill, O.B.E., M.B., B.Ch., K.H.P., who has completed his tour of duty abroad.

Eight-day Cruise

ELEVEN airmen members of the R.A.F. Changi Yacht Club, sailing in three converted airborne lifeboats belonging to the club, recently had an eight-day cruise of 160 miles, in the course of which they crossed the Straits of Singapore and (with the permission of the Dutch authorities), explored Batam and Bintan, two of the largest of the many small islands of the Riouw Archipelago.

New A.O.C. for 2 Group

AIR COMMODORE THE EARL OF BANDON, C.B., D.S.O., who spent last year as a student at the Imperial Defence College, has succeeded A. Cdre. L. F. Sinclair as Air Officer Commanding, No. 2 Group, British Air Forces of Occupation, Germany; A. Cdre. Sinclair is now Assistant Commandant of the R.A.F. Staff College, Bracknell, Berks.

Before going to the Imperial Defence College, Lord Bandon was Commandant of the Royal Observer Corps, an appointment he took up in November, 1945, after his return from Burma, where he commanded No. 224 Group. This group was a complete air force in miniature and the units under his command included No. 459 (Lightning) Squadron, U.S.A.A.F. The group took part in the capture of Akyab, which was the first combined operation in that theatre of war, the invasion of Ramree, and the occupation of Rangoon. His D.S.O. was won in 1940 in France, where he commanded a squadron of Blenheims. After the evacuation he served for a time at No. 2 (Bomber) Group H.Q. and later commanded the bomber station at West Raynham, Norfolk, before going to India.

University of London Air Squadron

THE title of the London University Air Squadron has been changed to University of London Air Squadron, at the request of the Senate of the University of London.

Auxiliary A.O.P. Squadrons

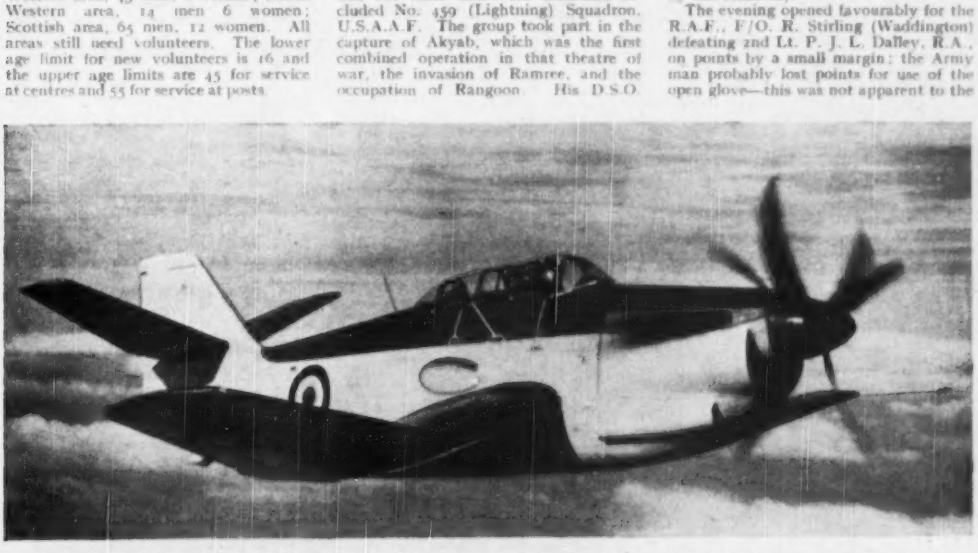
AIR observation post squadrons of the Royal Auxiliary Air Force are to join in an inter-squadron efficiency competition which will be judged on September 30th. The winning squadron will be the most efficient, judged by operational standards of war. Marks will be awarded for flying hours, serviceability, standard of training, recruiting and attendance, and for tactical exercises and an operational test to be held on the Royal Artillery ranges at Larkhill (Wilts).

Recruiting for the A.O.P. began last year and there are still vacancies for airmen in a wide variety of trades. Those who join will find they have a cheerful club in which to spend their leisure time; they will receive pay for every hour of training; will enjoy a fortnight's summer holiday at annual camp, and will be given opportunities to fly.

R.A.F. *v.* Army Officers' Boxing

AN annual pre-war event, with each Service alternating as host, the officers' boxing contest, R.A.F. *v.* Army, was revived on February 11th, with Odiham as the venue. The arena was erected in No. 54 Sqn. hangar, with a background of D.H. Vampires (54, incidentally, was the first jet squadron to fly the Atlantic).

The evening opened favourably for the R.A.F., F/O. R. Stirling (Waddington) defeating 2nd Lt. P. J. L. Dalley, R.A., on points by a small margin; the Army man probably lost points for use of the open glove—this was not apparent to the



SUB.-SCOURGE: First air-to-air view of Blackburn's Y.A.5 anti-submarine aircraft. Though the prototype depicted is temporarily fitted with a Griffon piston engine, later versions of this promising deck-landing machine will have turboprop power.

"Flight" photographs.

R.A.F. v. ARMY OFFICERS' BOXING: (Left) Air Marshal Sir Basil Embry congratulates F/L. Hester on a plucky though unsuccessful performance. (Right) Though floored twice, 2nd Lt. J. Newton (kneeling) beat F/O. Rutter on points.

SERVICE AVIATION . . .

mass of the onlookers and the decision caused some discussion. In contest No. 2, F/L. Sinclair (Waddington) put the R.A.F. two bouts ahead by defeating Capt. C. E. J. Taylor, R.H.A., in a one-sided contest that was stopped immediately by the judge. The army contestant, 2nd Lt. J. Newton, R.A.S.C., was given the verdict over F/O. Rutter (Little Rissington) in bout No. 3, although the R.A.F. officer floored his man twice; again this caused verbal battles among the spectators. A badly cut eye in the first minute of bout 4 caused F/L. Sparrow (Brize Norton) to retire after examination by the judge, who awarded the verdict to Lt. W. F. C. Robertson, West Ridings.

With four contests over and two wins apiece, the evening looked to *Flight*'s representative as though it might develop into a keen struggle.

The Army took the lead at bout No. 5, in a good even fight in which 2nd Lt. E. H. Bowen, R.E., defeated F/L. Brooks (Neatishead) on the judge's verdict. Bout 6 was again a grand struggle, Lt. G. A. Murray, R.A.S.C., winning from F/O. Hawkins (Abingdon). The R.A.F. team, though older in years, had the advantage of experience, and this was apparent in bout 7, when Off. Cdt. Simpson (Hullavington) gained a points win over 2nd Lt. M. F. Fane, R.A.C.; a good left lead maintained throughout the three rounds had Fane worried. The eighth contest brought the score four all with another R.A.F. win in similar fashion, F/L. H. J. Smith (Kenley), with his continuous forceful left, gaining the decision over Capt. C. Clarke, Royal West Kents.

In nearly every bout so far the judges had deemed it necessary to stop the fights for infringement of the rules, open gloves being the major offence. Contest No. 9 was cancelled, no reason being announced, and so the score remained at four bouts to each Service. The tenth fight was so short it could hardly be classified as such: F/O. J. A. M. Davies (Hemswell) totally outclassed 2nd Lt. Thomas, R.A., the judge stopping the contest after one round.

Lt. V. C. Abplanalp, R.M.P., quickly nullified the Air Force's one-bout lead in Contest 11. He was undoubtedly the best boxer of the evening. Boxing cleverly and wasting no punches, he found his opponent's weaknesses in round one and in the next put him down in no uncertain fashion, the judge stopping the fight instantly. This exhibition, short though it was, held all the finer points, and was a lesson in good boxing to many of the "tearaway types" who had performed earlier. F/L. Wallbanks (Spitalgate) was unlucky to have to meet such a craftsman.

At the last bout it was all square again—five to each Service and one to go. F/L. Hester (Pembroke) *v.* 2nd Lt. J. Dyer, R.A.O.C. This, the climax of the evening, held a lesson for the selectors of the R.A.F. team. Hester gained a decisive lead in round one, boxing well against a younger and very determined opponent. Then, in round two, age began to catch up on the R.A.F. man, who was tiring fast. The last round had everyone shouting advice, for the Army man, having seen his adversary weakening, flailed in, trying to finish decisively the rapidly failing Hester. The bell for the end of the contest brought a storm of clapping and cheers. The verdict was rightly given to the Army, so the evening's honours slipped through the R.A.F.'s fingers, not because of any lack of keenness or skill, but undoubtedly through age. The older Service had fielded the younger team and won the day.

The prizes were presented to 16th sides by Air Marshal Sir Basil E. Embrey, K.B.E., C.B., D.S.O., D.F.C., A.F.C. Among senior Army officers present was Lt. Gen. Sir Gifford le Q. Martel, K.B.E., C.B., D.S.O., M.C., president of the Army Officers' Boxing Association, and himself six times a champion.

L. W. McL.

"Flight" photograph.

THE NEW OWNER: Air Vice-Marshal T. G. Pike, recently appointed A.O.C. No. 11 Group, Fighter Command, with, left, S/L. R. J. Fursman, Station Commander at Filton, and S/L. N. P. Henderson, C.O. of No. 501 (County of Gloucester) Squadron. They are seen during a week-end visit to Bristol earlier this month.

Reunions

No. 16 O.T.U.—the Heyfordians' Association—is holding a reunion dinner and cabaret on Saturday, March 18th, at the Victoria Restaurant, Lower Belgrave Street (opposite Victoria Station). Details and tickets from S. R. Lines, 300, Bellegrove Road, Welling, Kent.

* * *

78 Squadron (air and ground crew) reunion on April 15th, in London. Write J. D. Lane, 4, St. Mary Abbot's Court, Kensington, London, W.14.

* * *

221 Squadron R.A.F., O.C.A. reunion in London, March 25th. Members only; tickets 6s 6d each from Hon. Sec., H. N. Crawshaw, 93, Nightingale Road, Carshalton, Surrey.

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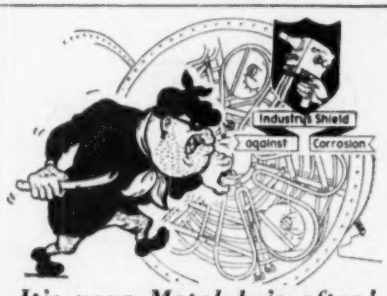

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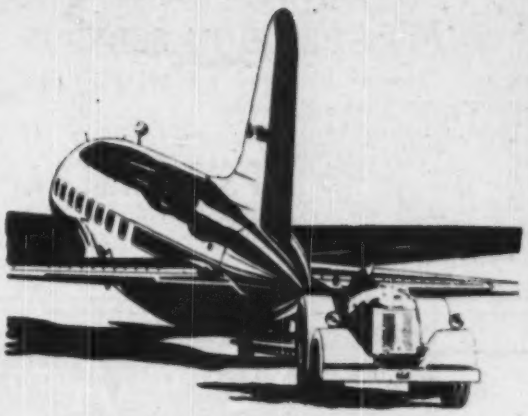

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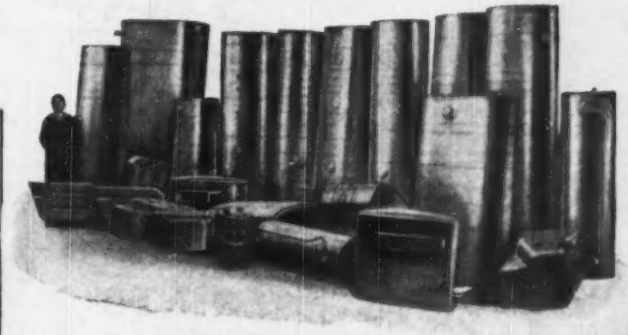

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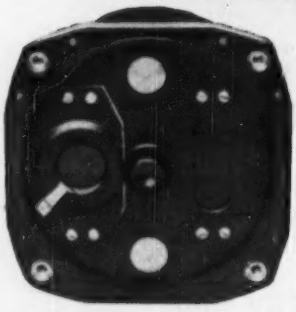

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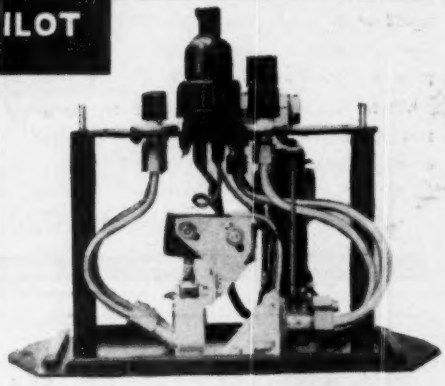

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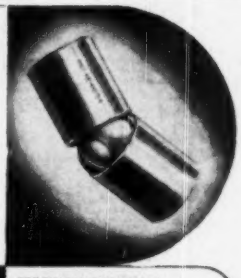

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